

## II. Final Statement of Reasons

# A. Informative Digest

## INFORMATIVE DIGEST

Section 25288.2(a) of the Health and Safety Code directs the State Board to develop regulations implementing the standards for underground storage tanks storing hazardous substances which are installed after January 1, 1984; for underground storage tanks installed before January 1, 1984, for recording; and reporting of unauthorized releases from underground storage tanks; for repair of underground storage tanks which have had unauthorized releases; for closing an underground storage tank; for issuing categorical and site-specific variances from the standards established for both new and old underground storage tanks; and for State Board approval of local design and construction standards which are more stringent than those set forth in the Health and Safety Code.

In addition, Section 25288.2(a) of the Health and Safety Code states that the State Board may adopt regulations implementing standards for an initial application form for a permit to operate an underground storage tank and for an annual report form; for fees to be paid to the local agency including a surcharge to cover costs to the State Board, and for procedures to ensure that trade secrets are appropriately protected.

### Summary of Proposed Regulations

## Article 1. General

The regulations in this subchapter are intended to protect waters of the State from dischargers of hazardous substances from underground storage tanks. Owners or operators of underground storage tank(s) are required to monitor the tank, maintain appropriate records; report unauthorized releases and properly close the tank as required by the permit. Counties shall implement these regulations within both the incorporated and unincorporated areas. Cities may, by ordinance, implement these regulations within their boundaries.

Under specific situations some underground storage tanks are exempt from these regulations. Counties and cities which enacted an ordinance meeting certain minimum requirements prior to January 1, 1984 are exempt from the regulations except for some administrative reporting requirements. Underground storage tanks which operate under hazardous waste facilities permits or have been granted interum status by the Department of Health Services are exempt from these regulations.

## Article 2. Definition of Terms

The regulations include definitions, arranged in alphabetical order for technical terms in the regulations.



### Article 3. New Underground Storage Tank Construction and Monitoring Standards

Statewide minimum standards for the construction of new underground storage tanks and the associated monitoring systems are developed in Article 3. All new underground storage tanks must provide primary and secondary levels of containment for the hazardous substances stored in them. The primary container must be product-tight under all circumstances (i.e., impervious to the substance contained within it).

The requirements for the secondary container differ depending on the type of hazardous substance stored in the primary container. For hazardous substances other than motor vehicle fuels, the secondary container has volumetric requirements and protects ground water by temporarily storing an unauthorized release during both the detection and cleanup and removal programs. An access casing(s) is required in the secondary container for installation of the monitoring system to detect unauthorized releases and provide a conduit for removal of the hazardous substance.

The secondary container for motor vehicle fuel underground storage tanks is referred to as a leak interception and detection removal system. The secondary container has no volumetric requirements except that which is required to activate the

monitoring system installed in the access casing(s). The leak interception and detection system must direct the unauthorized release to the access casing for detection and removal. In itself, the leak detection and removal system (secondary container) provides minimal protection against ground water contamination. A response plan must be developed for the motor vehicle fuel underground storage tanks to assure that any unauthorized release from the primary container will be cleaned up before reaching ground water if the leak interception and detection system is overtopped.

#### Article 4. Existing Underground and Storage Tank Monitoring Criteria

The regulations establish statewide standards for water quality monitoring at underground storage tanks that store hazardous substances. The objectives of the monitoring program are to determine if unauthorized releases are occurring and to equip existing tanks with a monitoring system that will give early warning of future unauthorized releases before ground water is affected. To achieve these monitoring objectives, visual monitoring or one of eight monitoring alternatives may be used.

Specific types of monitoring included in the monitoring alternatives are (1) pressure testing of underground storage tanks to detect leaks of 0.05 gallons per hour or greater, (2)

soil testing to detect whether slow leaks are occurring and to determine the type of monitoring that is appropriate for the site, (3) vadose zone monitoring to provide early warning of future leaks, (4) and ground water monitoring. In the that event monitoring indicates an apparent unauthorized release has occurred, the actions to be taken for monitoring and corrective action will be governed by the provisions of Subchapter 15 of Chapter 3 of Title 23, California Administrative Code, governing the discharge of waste to land.

The regulations include standards for obtaining, transporting, storing, and analyzing samples and for well construction.

#### Article 5. Release Reporting Requirements

The regulations describe the specific procedures for reporting unauthorized releases. All unauthorized releases must be reported by underground storage tank owners or operators to local agencies. Two types of reporting procedures (one requiring immediate reporting and one requiring only initial recording with reporting as part of normal operating reports) are proposed depending on the threat of contamination to soil and water as a result of the unauthorized release. The reporting procedures include what information must be reported, how and when to report an unauthorized release, local agency responsibilities, and how to determine the integrity of the underground storage tank after

a release.

#### Article 6. Repair Methodology

The regulations would allow a one-time repair of an underground storage tank containing motor vehicle fuel not under pressure that has failed. The underground storage tank owner proposing to repair an underground storage tank must demonstrate to the local agency that all of the failure mechanisms affecting the underground storage tank have been identified and that the proposed repair will correct the problems. A test or inspection must be performed to determine if the underground storage tank is structurally sound. Repairs are required to be performed using accepted engineering practices with materials that are compatible with the underground storage tank and with the hazardous substance(s) being stored. Following the repair, the underground storage tank owner must demonstrate that the repair was successful and that the underground storage tank will provide containment.

#### Article 7. Closure Requirements

The regulations specify certain actions and evaluations which must be completed by the underground storage tank owner when the underground storage tank is either temporarily or permanently taken out of service. Temporary closure allows an underground

storage tank to be taken out of service for up to two years without implementing permanent closure. A formal closure plan is required to be submitted to the local agency prior to closure. Leaking underground storage tanks must be repaired or permanently closed.

The regulations for both temporary and permanent closure require that all residual hazardous substances be removed from the underground storage tank. Also, flammable vapors must be purged from the underground storage tank. Temporary storage requires the sealing of all underground storage tank openings and the disconnection of electrical supplies to pumps. Monitoring during the temporary closure period may be required.

The underground storage tank owner has two options under the regulations for permanent closure: either removal of the underground storage tank or closure in-place. In removing an underground storage tank, all liquids, solids, and sludges must be withdrawn. Closure in-place requires removal of all liquids; solids and sludges; the removal of all piping, if feasible; and filling of the underground storage tank with inert material, in most instances.

At closure, the underground storage tank owner must demonstrate that soil or ground water contamination has not occurred as a result of prior use of the underground storage tank. This can be

accomplished by analyzing prior monitoring data or collecting and analyzing samples of soil under the underground storage tank on closure.

#### Article 8. Categorical and Site-Specific Variance Procedures

The regulations establish procedures for categorical and site-specific variances from the construction and monitoring standards of Article 3 and monitoring standards of Article 4. A categorical variance is applicable to more than one site and is obtained by application to the State Board. A site-specific variance is applicable at one facility or within one local agency's jurisdiction and is obtained by application to the appropriate Regional Board. The procedures includes defining categorical and site-specific variance, identifying needed information, establishing notification and review procedures, allowing conditions to be placed on the variance, defining local agency responsibilities, and allowing the variance to be modified or revoked.

#### Article 9. Local Agency Additional Standards Request Procedures

Section 25288.3(b) of the Health and Safety Code allows local agencies to request State Board authorization for implementing more stringent standards than those set by Article 3. The regulations describe request procedures which include identifying

information needed to evaluate the request, review and public hearing procedures and scheduling, effective dates, and allowing the State Board to modify or revoke additional standards.

Article 10. Permit Application, Annual Report and Trade Secret Requirements

The regulations establish permit procedures and conditions, and procedures for updating permit information through the annual report and trade secret provisions. The regulations require underground storage tank owners to obtain a permit, identify what information is required in the permit application, require fees to cover local agency costs, and identify local agency responsibilities for issuing permits and reporting permit changes and unauthorized releases. The regulations also establish procedures to evaluate requests for confidentiality of information and to ensure that the trade secrets are utilized only in connection with protecting water quality.

Dated:

STATE WATER RESOURCES CONTROL BOARD

## B. Statement of Reasons: Preamble



## Statement of Reasons

DRAFT

### Preamble

#### Statement of Necessity

Historically, both government and industry believed that the storage of hazardous substances in tanks was a technologically safe activity which would not threaten the environment. Recently, this theory has been shattered with the on-going reports of numerous instances of leaking tanks causing ground and surface water contamination. This is especially true for underground tanks since they are "out-of-sight, out-of-mind" and are not susceptible to easy visual observation of leakage. Underground storage tanks have not been subject to voluntary or mandatory leak detection monitoring. Typically, it has been the discovery of a contaminated water supply that has triggered a search for the source of the contamination that eventually led to a leaking underground tank.

Considering the widespread use of underground tanks and the reliance on ground water in California, we now find that it is necessary to regulate these underground tanks in order to adequately protect ground waters from contamination. This is especially important since groundwater, as differentiated from surface waters, is very difficult if not impossible to totally cleanup once contaminated.

These regulations require the use of necessary facilities, based on currently available technology, to preclude leakage from new underground storage tanks and to provide early detection of leakage from existing underground storage tanks.

### Statutory Authority to Regulate Underground Tanks

Chapter 6.7 of Division 20 of the Health and Safety Code was enacted in 1983 (Chapter 1046 of the statutes of 1983, AB 1362) to require specific construction and monitoring methods for both new and existing underground tanks that store hazardous substances. This Chapter of the Health and Safety Code was amended in 1984 by ABs 3565, 3447, and 3781 (Chapters 1038, 1537, and 1584 of the statutes of 1984, respectively). These proposed regulations were developed and noticed based on the authority given to the State Board in the 1983 statute. Throughout this Statement of Reasons, the references are to the Health and Safety Code based on the 1984 amendments with a cross-reference to the former sections in the 1983 version of the Health and Safety Code.

In most cases, these proposed regulations incorporated the provisions of the 1984 amendment since the 1983 statute gave the State Board authority. However, two situations precluded this incorporation: first, when the 1984 amendments contradicted the 1983 statute; and second, when the specific requirement in the 1984 statute could not be technically supported. In the first instance, the regulation require compliance with the appropriate section of the Health and Safety Code. This will implement the amendments but will eventually require that these regulations be re-noticed to incorporate specific regulations concerning the amendments. This will also be necessary to incorporate the requirements that could not be supported.

Section 25299.3 of the above Health and Safety Code (formerly Section 25288.2) requiresw the State Board to adopt regulations implementing specific sections of the

statute and allows the Board to adopt regulations for other sections.

As such, several sections of the regulations repeat, in part, the language of the statute. There are several reasons to justify the need for this duplication. The statutory language is detailed in and of itself. Because of this level of statutory detail, regulations are not necessary to implement or make specific the statutory language. However, if this language is not included in the regulations, there will be no transition to the following sections and clarity and cohesiveness will be lost. Additionally, repetition of the statutory language is necessary to ensure that individuals in local government and private industry are able to comply with the requirements with a minimal amount of reference to materials which have been incorporated by reference. Finally, since the statutory language is detailed, any attempt to rephrase it could violate the consistency standard or review.

Statutory text appears in the following subsections of the regulations:

Article 10

2711 (a) (1)

(2)

(3)

(4)

(5)

(9)

(12)

2711 (b)

2712 (a)

2712 (f)

(g)

(g)

2714 (g)

Article 1

2610 (b)

(c)

Article 2

None.

Article 5

2651 (a) (1)

(4)

(6)

(b)

2652 (b)

(c) (1)

(5)

(6)

(e)

Article 8

2681 (a)

(b) (2)

(3)

(4)

(f)

(g)

(k)

2682 (a)

(b)

(c) (2)

(3)

(4)

(e)

(g)

(i)

Article 9

2691 (a) (1)

(2)

(c)

(d)

The statute provides that the permits for underground tanks will be issued by either counties or cities pursuant to these regulations. These permits will incorporate construction standards for new tanks and monitoring, leak reporting, and closure standards for both existing and new tanks.

#### Development of New Regulations

These regulations are mandated by Section 25299.3 of Division 20 of the Health and Safety Code (formerly Section 25288.2). This statute was recently enacted and there are no existing regulations addressing this matter. These regulations have been developed with the intent of meeting the following objectives:

1. Achieve the mandate of Section 25299.3, Chapter 6.7 of Division 20 of the Health and Safety Code (formerly Section 25288.2).
2. Provide concise standards, both performance and specific, for owners of new and existing underground tanks to follow.
3. Provide concise direction to counties and cities in their implementation of permits for all underground tanks.

4. Ensure that these regulations are presented in a clear and logical way and conform to the statutory requirements in the California Administrative Procedures Act (commencing with Section 11340 of the California Government Code).

#### Water Quality Protection Strategy

The fundamental purpose of the regulations in this subchapter is the prevention of pollution and unacceptable water quality degradation as a result of leakage from underground tanks. As was discussed previously, ground water resources are vulnerable to contamination from leaking underground tanks which can almost never be totally cleaned-up. This objective is addressed in these regulations according to the following complementary strategies:

1. A form of secondary containment is mandated in the statute for all new tanks. This containment coupled with a means of detecting any leakage within the secondary system and the remedial action plan are the basis for ground water protection. New tanks containing motor vehicle fuels are not mandated to have the same volumetric requirements within the secondary system as all other new tanks; therefore, the ground water protection strategy relies heavily on detection and response which must be an integral part of any new facility proposal.
2. The strategy relies on installing monitoring systems for existing tanks to provide ground water protection. Monitoring installed "after the fact" is somewhat unreliable; therefore, multiple monitoring systems are necessary to provide more assurance that a leak will be detected. Even with multiple systems, there is

some risk that a leak will go undetected; therefore, ground water monitoring is required in some situations and recommended in others as a final protection for the water user. The use of ground water monitoring will allow contamination to be detected and the ground water user notified of the need to find another source before the user consumes contaminated water. Ground water monitoring does not provide protection for the resource and is not utilized for that purpose, but provides a stop-gap public health protection for the consumer.

3. Leakage from underground tanks will continue to occur even with the implementation of the above strategies. In order to minimize the impact on the ground water resource, the regulations require the reporting of leaks to those agencies charged with the responsibility to assure that proper and adequate remedial actions are implemented in a timely manner.
4. The closure of an underground tank used to store hazardous substances must be accomplished in such a manner that it does not pose a continued threat to the environment. The regulations require the implementation of one or several alternative closure methods.

#### Small Business Impact Statement

The State Board finds that the adoption of these regulations may have a significant adverse economic impact on small business. The staff of the State Board believes the implementation of these regulations will require short-term capital expenditures (either to replace an underground tank or to install the required monitoring) and some on-going costs for monitoring. However, we believe these costs are less than the liability



a tank owner may incur to investigate and cleanup contamination resulting from a leak and the possible lawsuits if health implications are associated with the leakage. A decision was made to allow small businesses to postpone the implementation of permanent monitoring systems for up to three years, provided that interim monitoring is installed. This interim monitoring will provide leak detection but not to a reliability that the State Board believes is necessary to assure ground water protection. Given the high percentage of tanks that, once investigated, prove to be leaking, the staff of the State Board believes that the statewide implementation of these regulations will reduce costs to society.

Another impact to small business as a result of the implementation of these regulations will be the investigation and remedial action associated with the discovery of past leakage. Given the high percentage of leaking tanks already found, it is probable that many small businesses will discover that their tanks are leaking as a result of the implementation of the monitoring required by these regulations. The staff of the State Board has considered proposed alternatives including:

1. The establishment of different compliance or reporting requirements or timetables which take into account the resources available to small business;
2. Consolidation or simplification of compliance and reporting requirements for small business;
3. The use of performance standards rather than design standards; and/or,

4. Exemption or partial exemption from regulatory requirements for small business.

Many new requirements will affect small business, including requirements for increased monitoring, compliance with prescriptive standards (or demonstration of the equivalence of alternatives) providing assurances of financial responsibility, and post-closure maintenance requirements. The State Board has determined that compliance with these provisions is necessary to assure protection for water quality, for reasons set forth in the statement of reasons and in response to the comments of interested persons.

The local agencies implementing this permit program have some discretion as to the appropriate compliance methods and the timing for implementation of these methods. Once a leaking tank is identified, the Regional Board and other responsible agencies have significant discretions as to the timing and nature of hte investigation and remedial measures. This discretion can take into account the limited resources available to small business and the actual or potential impact to water quality or public health that the leak poses. In addition, investigation and remedial action costs could be borne by either Federal or State superfund actions.

Local Agency and School Mandate Statement

The State Board has determined that the state law which mandates these regulations imposes new requirements on local agencies and school districts with regard to their underground storage tanks. Local agencies will have increased costs associated with their implementation of an underground tank permit program. However, these costs are completely recoverable through fees, as discussed in page 50 of the updated fiscal

impact statement, pursuant to Section 25287 of Chapter 6.7, Division 20 of the Health and Safety Code (formerly Section 25283.3).

Local agencies and school districts will have increased costs associated with implementation of these regulations for underground storage tanks that they own or operate. Such costs are ~~not~~ reimbursable within the meaning of Section 2231 of the Revenue and Taxation Code. ~~This provision is based on Section 4 of Assembly Bill 1362 which was the subject of SB 2231 of September 23, 1983.~~

The initial and annual costs to local agencies and school districts are detailed in Tables S.1 through S.5 of the Final Fiscal Impact Statement.

(OAL 119)

A commenter indicated that costs to administer the inspection/permit application program at the local jurisdiction level had not been addressed. [111] This comment is rejected. The local agency costs for permitting and inspection programs are addressed in the final Fiscal Impact Statement.

# 1. Article 1, General

## Article 1. General

Subchapter 16 applies to underground storage tanks that store hazardous substances. The proposed regulations in this subchapter govern those aspects of the construction and operation of such underground storage tanks that directly or indirectly have the potential to affect water quality. This article covers the applicability of the proposed regulations to new and existing underground storage tanks and identifies facilities that are exempt from the proposed regulations.

### Section 2610. Applicability

#### Specific Purpose

The specific purpose of Subsection (a) is to state the general intent of the proposed regulations and to outline the major activities covered.

The specific purpose of Subchapter (b) is to identify who is governed by this subchapter and to specify that if the owner of an underground storage tank is not also the operator of the underground storage tank, the owner must enter into a written contract with the operator providing that the operator will comply with the conditions of the permit.

The specific purpose of Subsection (c) is to make clear that counties, and cities under certain conditions, are responsible for the implementation and administration of these proposed regulations and that these local agencies must issue permits for the operation of underground storage tanks located within their jurisdiction and that are covered by

this subchapter.

The specific purpose of Subsection (d) is to specify which articles of this subchapter apply to new underground storage tanks and which articles apply to existing underground storage tanks.

#### Comments

1. A commenter objected to the requirement that the underground storage tank owner enter into a written contract with the underground storage tank operator if they are not the same person for the monitoring procedures. [102]

Response: Section 25293 of the Health and Safety Code [formerly Section 25284.2] requires the underground storage tank owner to enter into a written contract with the underground storage tank operator if they are not the same person for the purposes of the monitoring provision in the permit.

2. A commenter agreed with the provision that existing underground storage tanks meeting new underground storage tank standards should be treated as new underground storage tanks for compliance purposes. [110]

Response: Clarifying changes to this section have been made that do not change the meaning with respect to the comment.

(OAL 101B)

3. A commenter stated that, because California has such varied geographic terrain and associated potential problem areas, it is virtually impossible to tailor regulations that take such factors into account. It is suggested that a new subsection be added that addresses this problem on a case by case basis. [102, 127]

Response: Article 3, New Underground Storage Tank Construction and Monitoring Standards, and Article 4, Existing Underground Storage Tanks Monitoring Standards, have been changed as a result of extensive comments received. The changes now provide enough flexibility in interpretation so as to take into account the varied geology of California.

(OAL 14)

4. A commenter requested clarification regarding applicability of the State's program in the case where a city, lying within the boundaries of a county which has adopted an underground storage tank ordinance prior to January 1, 1984, later adopts its own ordinance or adopts the State's program. This commenter recommended that in such instances, that the city provide the county with a one year advance notice. [140b/14b]

Response: Any incorporated city may choose to adopt its own ordinance or the State's program. A city is covered by their county ordinance in the absence of a city underground storage tank program. City ordinances must be in compliance with the State's program if adopted after January 1, 1984. With regard to the one year advance notice by the city, this is beyond the authority

of the Board under the Health and Safety Code.

#### Section 2611. Exemptions

##### Specific Purpose

The specific purpose of Subsection (a)(1) is to exempt from these proposed regulations the owners of underground storage tanks that are being regulated by county or city ordinances which were adopted and implemented under the provisions of Section 25299.1 of the Health and Safety Code [formerly Section 25288].

The specific purpose of Subsection (b) is to clarify that sumps which are a part of the monitoring system, as required under Article 3, are not exempt structures.

##### Factual Basis

Health and Safety Code Chapter 6.7 provides that no person shall own or operate certain underground storage tanks used for the storage of hazardous substances unless a permit for its operation has been issued to the owner by the local agency. Chapter 6.7 describes the scope of applicability identifying which types of underground storage tanks are to be regulated and specifying the agencies responsible for implementing the proposed regulations. Exemptions are included for certain types of underground storage tanks. The proposed regulations are being proposed to make clear the intent of the Legislature as to the objective of the underground storage tank program, who shall be regulated, who is responsible for implementing and administering the



program, and who is exempt from the proposed regulations.

#### Comments

1. Commenters questioned the authority of the State Board to allow local ordinances which meet only the requirements of Articles 3 and 4 and Sections 25291 and 25292 of the Health and Safety Code [formerly Sections 25284 and 25284.1, respectively] be exempted from the State program. [4a, 28, 53, 80c, 87, 91, 97, 102, 111, 112, 113, 115, 116, 117, 120, 139]

Response: Section 25299.1 of the Health and Safety Code [formerly Section 25288] specifically states that "Any city and county which prior to January 1, 1984 has adopted an ordinance which at a minimum meets the requirements set forth in Section 25291 and 25292 [formerly Sections 25284 and 25284.1, respectively], providing for double containment, monitoring of underground storage tanks and under which permits are issued, therefore, is exempt from the provisions of this Chapter so long as the ordinance, as it may be amended, continues to meet the requirements of Section 25291 and 25292 [formerly Sections 25284 and 25284.1, respectively]." Staff has clarified Section 2511 by removing the reference to Articles 3 and 4.

#### (OAL 8A)

2. Commenters believed that much of the language on exceptions contained in Section 2611 is a duplication of the language contained in Chapter 6.7 of Division 20 of the Health and Safety Code. [4a, 4b, 12, 24, 28, 37, 37c, 51, 56, 57, 58, 80a, 81, 83, 91, 100, 100b, 113, 117, 120, 121, 125d, 126, 126a, 127, 129,

133, 134, 138, 139, 151, 151b, 153, 160, 176, 189]

Response: All duplications of sections contained in Chapter 6.7 of Division 20 of the Health and Safety Code have been deleted from the proposed regulations. Staff refers the commenters directly to the statute for guidance.

(OAL 8B)

3. One commenter recommended that Subsection 2611(a)(1)(C) be deleted because local jurisdictions are exempt from the subject reporting requirements [4a, 4b].

Response: This subsection has been deleted from the regulations.

The following comments are applicable to the proposed regulations as a whole; however, they are specific to an article.

Comments

1. Commenters believed that the State Board should ask Assemblyman Sher for emergency legislation to extend the date of implementation of the underground storage tank laws and regulations and ask that basic flaws in the legislation be corrected. [17b, 37, 85c, 91b, 113c, 126b]

Response: This comment is rejected. It cannot be considered in the context of the rulemaking process. The proposed regulations must reflect existing law. Any concerns over existing law should be directed to the Legislature.

2. Commenters were concerned that the proposed regulations do not provide adequate flexibility to the local agencies. [85c, 97, 97c, 98c, 117c, 125d, 188b, 191b]

Response: The proposed regulations have been clarified, and flexibility has been added for local agencies to deal with the varied types of regulation problems. Articles 3 and 4, for instance, have been expanded to contain alternative monitoring and underground storage tank construction methods.

(OAL 29A, 29B, 100, 128, 140)

3. Commenters requested that the State Board include in the proposed regulations certain procedures, methods, and exemptions that go beyond the broadest interpretation of the statute. Most of these requests concerned exemptions for underground tanks utilized for specific business such as the following: cotton ginning operations, storage of motor oil and fuel at automobile dealerships, small hydraulic reservoirs used in conjunction with automobile lifting equipment, and waste oil tanks whose contents are not normally metered [13, 30, 94b, 95b, 102c, 102j, 106b, 114, 121, 127, 128 129, 163a, 191b]. A typical request for exemption was based on the contention that a shortage of oil from inground hydraulic hoist reservoir would disable the hoist [30].

Response: These comments are rejected. *The State Board cannot*  
*provide any and exemptions in the proposed regulations that go beyond what*  
*is allowed.* The Legislature has defined underground storage tank to exclude  
specified categories of tanks. In the face of these clear and definite legislature  
exemptions, it would be inappropriate for these regulations to create additional

exemptions in response to the request of these commenters. For example, the Legislature provided carefully limited exemptions for certain agricultural tanks (i.e. tanks used for hazardous substances for control of external livestock parasites, fuel tanks at farms, and crop duster fuel tanks). These exemptions are clearly drawn and do not require administrative interpretation. Tanks at non-farm agricultural enterprises (such as cotton ginning operations, waste oil collection tanks, and lumber mills), fuel tanks at automobile dealerships, waste oil collection tanks, and reservoir tanks for hydraulic hoists are clearly outside the scope of the statutory exemptions. The definition of farm used by the California Department of Food and Agriculture is consistent with the State Board's interpretation of the farm exemption. The definition used by California Department of Food and Agriculture is the primary production of food and fiber (i.e. the photosyntheses or raising of livestock to produce the food or fiber. Underground storage tanks used by the timber industry are not associated with parts of the industry which could conceivably be farms. Usually they are located at mills or logging firms equipment yards rather than at tree growing areas. It is unnecessary for the State Board to adopt interpretational regulations in this context.

4. Commenters objected that the proposed regulations go beyond the jurisdiction granted to the State Board by Chapter 6.7 of Division 20 of the Health and Safety Code. [1b, 38b, 42, 43, 53, 61, 84, 87, 97, 138, 139, 142b, 170, 171, 172, 178, 180, 192, 194]

Response: This comment is rejected. The State Board's responsibility in developing the proposed regulations is to interpret the Legislature's intent in the

enabling legislation and provide standards which must be met to satisfy that intent. The State Board's interpretation is that conformance with these requirements provides the minimum protection necessary to protect ground water and, as such, does not exceed the authority of the State Board. The proposed regulations are within the scope of Health and Safety Code, Division 20, Chapter 6.7.

5. Commenters believed that the proposed regulations do not provide direction as to what to do when a leak in a underground storage tank occurs. [38b, 58, 94, 162, 163a, 164]

Response: This comment is rejected. The proposed regulations contain language in Article 5 on how to report a leak. There is no statutory authority in Health and Safety Code, Division 20, Chapter 6.7, which would allow the State Board to adopt regulations for the investigation and cleanup of releases of hazardous substances methodology. The local agency, Regional Board, and other appropriate governmental agencies will oversee cleanup operations on a case-by-case basis under authority specific to those agencies.

6. Commenters suggested that the State Board should be responsible for testing and approving components and/or systems to satisfy construction and monitoring standards set forth in the proposed regulations. [1, 38e, 80, 85]

Response: This comment is rejected. The State Board does not have legal authority to approve system components for underground storage tank construction and monitoring under Chapter 6.7 of the Health and Safety Code.

7. Commenters suggested that septic tanks should be regulated under the proposed

regulations. [58]

Response: This comment is rejected. If septic tanks contain hazardous substance as defined by Health and Safety Code, Division 20, Chapter 6.7, they will be regulated under the provisions of the statute. The master list of hazardous substances developed by the Department of Health Services for the underground storage tank program is available at the State Board.

8. Commenters believed that the proposed regulations hold the presumption everyone is guilty and must prove their innocence before violations occur. [57]

Response: This comment is rejected. The proposed regulations reflect the enabling statute. The intent of the law is to prevent the contamination of ground water aquifers. Evidence has indicated that leaking underground storage tanks have contaminated aquifers. The proposed regulations govern the reporting of unauthorized releases which will reveal those underground storage tanks that are potentially contaminating surface and ground waters.

9. Commenters request time to verify whether monitoring should be required for their specific underground storage tanks situation. [118]

Response: This comment is rejected. The statute is clear on which underground storage tanks are exempt from being issued a permit and monitoring. The deadline for installing monitoring is set by statute. Neither of these issues can be changed by the State Board under its existing authority.

10. Commenters were concerned that local agencies do not have the expertise to implement the proposed regulations. Others indicate the need for local agency training by the State. [1, 23, 111b, 97, 168, 191b]

Response: These comments are rejected. The statute specifically requires the local agencies to implement the proposed regulations. Further, the statute provides that the local agency can collect fees to implement the program which would include provisions for hiring personnel with the required expertise or training existing personnel.

11. Commenters believed that the proposed regulations lack clarity, are confusing, and contain excessive verbage. [1, 50, 68, 96, 126, 126b, 127, 127b, 171, 172]

Response: This comment is rejected. The State Board has conducted six workshops and three public hearings. As a result of public input, confusing, duplicative, and excessive verbage has been removed from the proposed regulations.

12. Commenters believe that the State Board should assure that there is conformity between local agencies in the implementation of the proposed regulations. [121, 147]

Response: This comment is rejected. There is no statutory authority for the State Board to assure conformity in the interpretation of the proposed regulations by local agencies. The only requirement is that local agencies meet certain minimum requirements as set forth in the law.

13. Commenters gave approval to the proposed Subchapter 16 regulations. [9b, 14, 27b, 70b, 77, 85c, 90, 111b, 118b, 166, 210]

Response: No response required.

14. Commenters commended staff efforts and noted substantial improvement in the November 9 draft. [14c, 37c, 80c, 97c, 116b, 125d, 139, 140b, 155d, 165]

Response: No response required.

15. Commenters questioned the requirements in the proposed regulations that would require the installation of thousands of dollars worth of equipment for monitoring. [34, 68, 87d, 94, 102e, 113c, 126a, 129, 163a, 211]

Response: Article 4 of the proposed regulations has been substantially revised as a result of the many comments received to include alternative monitoring that would be less costly. Monitoring alternative number 8 was designed to assist small businesses by developing low-cost, interim-monitoring methods.

16. Commenters suggested that the proposed regulations contain guidelines to determine cleanup levels and methods for hazardous substances that have leaked from underground storage tanks. [13, 94, 94b, 95, 102b, 113, 163a, 164]

Response: This comment is rejected. The statute (Health and Safety Code, Division 20 Chapter 6.7) does not contain language that would allow the State



Board to adopt cleanup level regulations.

17. Commenters believed that the State Board should enact regulations which would conform to most of the provisions of ABs 3447, 3565, and 3781 (amendments to AB 1362 adopted during the 1984 Legislature) in the current rulemaking process.  
[24, 78b, 78g, 126b]

Response: This comment is rejected. The proposed regulations incorporate a number of the provisions from the three amending bills. These are provisions which do not substantially change the original statute in AB 1362. Additional provisions of these bills which could not legally be included during the present rulemaking process will have to be incorporated into the proposed regulations later. However, another formal review and comment period followed by adoption by the State Board will be necessary for the remaining amendments.

(OAL 156A)

18. Commenters believed there is concern by local agencies that they cannot handle the workload nor cover the costs of implementing the proposed regulations.  
[191b, 206]

Response: This comment is rejected. Section 25299.5 of the Health and Safety Code [formerly Section 25289] gives local agencies the authority to levy service charges, fees, or assessments sufficient to pay for administering the program or level of service mandated by the law.

19. Commenters suggested that a no-fault State insurance plan for spill or leak cleanup should be enacted. [20b]

Response: This comment is rejected. A State insurance plan was not included in the enacted statute. Therefore, the State Board has no authority to mandate any such insurance plan.

20. Commenters believed the cost to implement the proposed regulations would be prohibitive. [3, 4, 13, 14, 16, 18, 19, 20, 23, 27, 31, 32, 33, 35, 39, 40, 45, 47, 59, 64, 66, 68, 71, 73, 74, 77, 80a, 81, 84, 85c, 88, 92, 94, 95, 95b, 98b, 100, 102, 102b, 103, 105, 106, 107, 108, 111, 126, 126b, 132, 138, 141, 142, 142b, 143, 144, 145, 146, 150, 153, 158, 160, 170, 175, 179, 180, 182, 189, 192, 211]

Response: Most comments were made with respect to the initial draft of the proposed regulations which would have required compliance with numerous monitoring methods for existing underground storage tanks. However, the proposed regulations have been modified and, as adopted, require compliance with only 1 of 8 monitoring alternatives. Furthermore, monitoring alternative number 8 was developed to address the financial impact to small businesses.

21. Commenters suggested that, because of the quantity and complexity of changes made in the November 9 draft proposed regulations, another hearing and comment period should be allowed. [53, 87g, 126b]

Response: This comment is rejected. The State Board has satisfied their legal

requirements by holding a public hearing on November 27, 1984. Furthermore, a revised draft of the proposed regulations based on the November 27, 1984 hearing was issued on December 28, 1984, and a Board Meeting was held on January 18, 1985.

22. Commenters suggested that interim monitoring provisions contained in Subsection 2641(c)(8)(A) should be extended to all underground storage tank owners for some period of time or for three years, or introduce legislation to change the compliance date. [15, 31, 37, 39, 42, 44, 53, 60, 65, 67, 72, 74, 75, 77, 81, 84, 86, 87e, 90c, 91, 92, 93b, 97c, 102e, 104, 108, 113, 113d, 113e, 125d, 126b, 132, 135, 137, 138b, 138c, 140, 166, 163c, 192, 197]

Response: This comment is rejected. Section 25292 of the Health and Safety Code [formerly Section 25284.1] is quite clear and specific in establishing a deadline for compliance with the monitoring alternatives. The State Board has no authority to supersede the legislatively mandated deadline under the statute. Monitoring alternative number 8 was developed because of restrictive funding circumstances of small businesses and governmental agencies as well as to provide an incentive for replacing underground storage tanks with only primary containment with underground storage tanks which have secondary containment.

The interim monitoring required in monitoring alternative number 8 will provide water quality protection; however, it is not reliable for long periods. For small businesses or governmental agencies, the additional time provided under monitoring alternative number 8 allows development of financing for more

reliable long-term monitoring alternatives. The ground water quality is best protected by the use of underground storage tanks which have secondary containers. Therefore, monitoring alternative number 8 is an incentive for those underground storage tank owners who will commit to closing existing underground storage tanks with primary containment and replacing them with underground storage tanks which have secondary containment.

23. Commenters believed that the State Board has not allowed enough review time or public participation. [87g, 102c, 126b, 188b, 206, 212]

Response: This comment is rejected. The State Board has had two public hearings, one workshop, and one public meeting to discuss the proposed regulations. The State Board complied with the requirements of the Administrative Procedures Act by making the proposed regulations available for at least 15 days before both public hearings. All public hearings, the meeting, and the workshop were well attended. Staff also presented six informal workshops for affected parties prior to the first public hearing.

24. A commenter believed that the proposed regulations need to be more stringent on the installation, type, and construction of underground storage tanks. [209]

Response: This comment is rejected. The State Board has developed the proposed regulations which are the minimum standards required to protect water quality. Standards which are more stringent than the law provides would go beyond the State Board's authority granted in the statute. However, local

agencies which can demonstrate to the State Board that additional standards are necessary to protect water quality in their local jurisdiction can require more stringent standards.

25. A commenter requested an exemption for emergency underground storage tanks which are used to catch emergency spills and which are normally empty. [151b]

Response: This comment is rejected. The Legislature was specific in describing the conditions under which an underground storage tank was exempted from these proposed regulations. These exemptions are described in Sections 25281(o) and (r) of the Health and Safety Code [formerly Sections 25280(k) and (m), respectively]. The definition of storage in Section 25281(o) includes temporarily stored hazardous substances and, thus, these emergency underground storage tanks must comply with the proposed regulations.

(OAL 86A, 86B, 98)

26. Commenters did not support the exemption of underground storage tanks which store wastes, ~~and if~~ Commenters also expressed ~~confusion~~ confusion as to who regulates the underground storage tanks which service the waste underground storage tanks. [116c, 120]

Response: This comment is rejected. The Legislature specifically exempted ~~underground~~ underground storage tanks which have been issued a hazardous waste facilities permit by the Department of Health Services or have been granted interim status [Health and Safety Code Section 25281(o) [formerly Section

25280(k)]]]. The State Board has no authority to remove this exemption. Such tanks are subject to federal and state regulations for hazardous waste control which are analogous to these regulations in mandating containment and monitoring. The decision as to whether the Department of Health Services or a local agency regulates a specific underground storage tank will be determined based on the definitions described in the statute.

27. A commenter objected to the definition of "continuous" in the proposed regulations on the grounds that it was inconsistent with the definition found in Black's Law Dictionary and with the requirements of AB 3781 (Sher 1984). [78b]

Response: This comment is rejected. There is no inconsistency between the definition adopted by the State Board and that cited by the commenter. It is the responsibility of the rulemaking agency to interpret statutory requirements. The State Board, based on a review of automatic monitoring equipment available for use at underground storage tanks, concluded that cyclic or periodic monitoring provides an acceptable level of leak detection capability and is consistent with the requirement that continuous monitoring be uninterrupted and unbroken. The State Board believes that, although periodic monitoring entails a series of measurements at finite intervals so long as the measurement process is continuous and uninterrupted, the requirements of the statute will be satisfied.

(QAL 46)

28. A commenter said stored products for agricultural use or petroleum transmission can seriously pollute large water sources. However, the proposed rule quite

25281(h) of the Health and Safety Code specifically includes "the state" in the definition of persons who are subject to local agency authority if they own underground tanks.

(OAL 49B)

One commenter was concerned about the possibility of small businesses being victimized by technological vendors and recommended that some guidance be provided so small businesses could make cost-effective investments [83b].

Response: This comment is rejected. The legislature did not authorize the Board to serve as a clearinghouse for equipment that might be employed to comply with these regulations. However, in numerous instances the regulations do require equipment, materials and processes to meet certain nationally recognized standards or to be listed or certified by nationally recognized independent testing organizations.

(OAL 28C)

One commenter recommended that in the case of a leaking tank that the owner should be required to implement an adequate monitoring program designed to appropriately deal with the problem [27b].

Response: This comment is rejected. Sections 25291 and 25292 of the Health and Safety Code require that tanks be monitored prior to a leak in order to detect a leak when it occurs. Articles 3 and 4 of the Regulations specify monitoring methods. A monitoring program for clean up action is clearly

outside the scope of the regulations.

(OAL 33)

One commenter questioned whether the farm exemption in Subsection 2611(a)(3) would require separate fuel systems for agriculture and personal use [56].

Response: This comment is rejected. Subsection 2611(a)(3) of the August 23, 1984 draft regulations has been deleted, because it was a duplication of the statute. Since the scope of the exemption is defined in the statute, this comment does not relate to the proposed regulations.



## 2. Article 2, Definition of Technical Terms

## Article 2. Definitions of Technical Terms

### Section 2620. Definitions

#### Specific Purpose

The specific purpose of this article is to establish appropriate definitions for technical terms and terms-of-art used in these proposed regulations in order to ensure consistent interpretations of the regulatory requirements.

#### Factual Basis

Establishing a regulatory program to administer underground storage tank construction and monitoring standards involves consideration of many technical factors. These factors include engineering, geology, and hydrology. The program must be both understandable and sufficiently technical in nature so as to be workable. The use of definitions to explain technical terms allows both of these goals to be met. In addition, definitions to technical terms are needed to meet the clarity requirements of the Administrative Procedure Act.

Without the definitions, the proposed regulations would be much harder for many people to understand. Thus, the definitions are necessary to assure clarity and to avoid ambiguities.

The definition of "nationally recognized independent testing organization" has been

added to the regulations because OAL indicated the regulations lack clarity without it. The definition includes the names of all such organizations that are known to the Board. These organizations are independent of regulated industries, are known nationwide for objectivity and reliability. They set standards, list or certify equipment or material meeting appropriate standards or tests for suitability for use in a specified manner, or evaluate the accuracy of testing methods.

The definitions for "ground water", "first ground water", and "perennial ground water" have also been added to the regulations following OAL review in response to previously unanswered comments [77, 107k, 117].

#### Comments

##### (Comment on May 14, 1985 Amendments)

A commenter suggested that the abbreviations for each organization, such as American National Standards Institute (ANSI) should be included [11b].

The regulations have been amended, and abbreviations have been added to each of the organizations listed under the definition. "Nationally recognized independent testing organization".

##### (Comment on May 14, 1985 Amendments)

Commenters requested that certain additional organizations be listed as nationally recognized independent testing organizations. [21b, 213]

These comments were rejected because the commenters did not provide substantiation for the independence or objectivity of the organizations suggested. The Board will consider the qualifications of those organizations and will propose amendments to the list of recognized organizations, if appropriate.

(OAL 88A

1. A commenter believed the definition of "unauthorized release" in the proposed regulations is too restrictive. [102] A commenter believes the definition of "unauthorized release" should be ~~xxxxxx~~ amended to include some "de minimus" levels [139].

Response: The proposed regulations were modified to make it clear that intentional withdrawal of hazardous substances for legitimate purposes is not an "unauthorized release". However, that does not provide for relief where unauthorized release is "de minimus". Any leakage from an underground tank is unauthorized according to Section 25281 of the Health and Safety Code. To set minimum levels would be very difficult since a minimum level for one hazardous substance may be unacceptable for another hazardous substance.

2. Commenters believed the definition of "product tight" should be revised to recognize that underground storage tanks deteriorate during their lifetime. An underground storage tank which has deteriorated should not be considered product tight. [86, 97]

Response: This comment is rejected. "Product tight" is defined in Chapter 6.7 of Division 20 of the Health and Safety Code, and therefore the definition has

been deleted from the proposed regulations. The statutory definition requires that underground storage tanks shall not be subject to deterioration during their useful lives.

(Comment on May 14, 1985 Amendments)

A commenter suggests modifying the definition of ground water to "Groundwater means subsurface water which flows into a well within a reasonable period". [37f].

Response: This comment is rejected. The added phrase "within a reasonable period" interjects an unnecessary subjective element into the definition that thwarts the purpose of a definition, i.e., the definition is subject to each individual's conception of the word "reasonable". From a technical perspective, the added phrase is unnecessary. We acknowledge that the rate at which ground water flows into a well is dependent on the transmissivity of the aquifer and that this rate can vary over a wide range. However, the objective of these regulations are to identify, monitor, and protect ground water regardless of the transmissivity of the aquifer in which it resides. Product leaking from an underground storage tank will be undetected if it is underlain by an aquifer of low transmissivity that is not monitored. In those areas that are known to be underlain by aquifers of low transmissivities or where the cuttings from borings indicate that the soil has a high water content, the wet zones need to be monitored.

(Comment on May 14, 1985 Amendments)

A commenter suggests that the American Petroleum Institute Groundwater Monitoring and Sample Bias publication should be added to Table C. [37f]

Response: This comment is rejected. The principal criterion by which the publications listed in Table C were selected is that they are recommended by independent organizations not affiliated with the regulated community. The American Petroleum Institute does not meet this criterion.

(Comment on May 14, 1985 Amendments)

A commenter said a reference listed in Appendix 1, Table C has been revised and, therefore, should be updated, and another reference is outdated. [37f]

The regulations have been amended, and the date has been corrected for the first reference. The comment regarding the second reference is rejected. The reference book that is outdated will remain since EPA has not finished its revision and publication of it yet.

3. Commenters believed the definitions of the terms "motor vehicle fuel" and "motor vehicle fuel tank" should be revised to consider the material stored rather than the specific use of the material. [24, 34, 38, 85c, 85d, 86, 87b, 97, 97c, 102, 104b, 104c, 112, 113, 113d, 114, 119, 127, 139, 164, 176, 184.]

Response: The definition of motor vehicle fuel and motor vehicle fuel tank have been broadened. Any underground storage tank which stores any fuel

which can be used by any type of engine or motor vehicle will qualify as a motor vehicle fuel tank.

4. Commenters requested that the chemical hexane should be considered a motor vehicle fuel. The underground storage tanks that store this substance should be able to use monitoring and construction standards available for motor vehicle fuel underground storage tanks. [53, 87, 123, 123c]

Response: This comment is rejected. Only in situations where hexane is used to fuel an engine can the monitoring alternatives for motor vehicle fuel monitoring and construction standards be used.

5. Commenters requested that the definition of hazardous substances should be amended to identify flammable liquids as Class I liquids. Where are the master lists of hazardous substances available? The proposed regulations should include the criteria by which substances which do not adversely effect the waters of the State can be exempt as being considered a hazardous substance for the purpose of these proposed regulations. [102, 127, 139]

Response: This comment is rejected. Section 25281(a) of the Health and Safety Code requires the Department of Health Services to compile a comprehensive master list of hazardous substances. This list is available at the State Board and from local agencies charged with implementation of Chapter 6.7 of Division 20 the the Health and Safety Code. Whether or not a flammable liquid is also a Class I liquid is unimportant because the specific hazardous substances have been identified.

Section 25280(c) allows the Department of Health Services to exempt substances which do not adversely affect the waters of the State. If substances are exempted, they would be removed from the list rather than listed in these proposed regulations.

(OAL 84A)

6. Commenters believed the definition of piping with respect to underground storage tanks is unclear. [34, 53, 86, 87, 97, 102, 113d, 113e, 119, 124, 138, 139]

Response: This comment is rejected. The definition of piping was deleted in the proposed regulations because it is defined in the statute in Section 25281(i) [formerly Section 25280(q)]. The definition in the statute does not need additional interpretation because Sections 25281(o) and (r) of the Health and Safety Code [formerly Sections 25280(k) and (m), respectively] define storage and underground storage tank, and these definitions clarify the definition of piping.

(OAL 154C)

One commenter indicated that the definition of "tank" in the regulations should be clarified to indicate at what size a container becomes a tank. [151]

Response: This comment is rejected. The definition of "tank" has been deleted from the August 23, 1984 draft regulations, because it was a duplication of a portion of the definition for "underground storage tank" in Section 25281 of the Health and Safety Code. Section 25281 contains no minimum size for an underground storage tank, so therefore, any size container satisfying the subject



definition in Section 25281 is considered an underground storage tank. AB 3565 (Katz, 1984) amended Section 25281 of the Health and Safety Code to define "tank" and to create an exemption for small (<1,100 gal.) tanks storing home heating fuel.

7. A commenter was concerned that vent and vapor recovery piping was not specifically excluded from the definitions of underground storage tank. [87g]

Response: This comment is rejected. Vent and vapor recovery piping which is connected to an underground storage tank should not be specifically excluded from the definition of underground storage tank. The recovery piping has the potential to have unauthorized releases which could contaminate soils or surface and/or groundwater. Therefore, this piping should not be excluded from any construction or monitoring requirements.

8. Commenters believed the definitions of "existing underground tank" and "new underground tank" are unclear because they fail to address underground storage tanks that are used currently to store nonhazardous substances but could be used in the future to store hazardous substances. [151, 151b]

Response: This comment is rejected. Section 25281(r) of the Health and Safety Code [formerly Section 25280(m)] defines an underground storage tank as one "which is used for the storage of hazardous substances" (emphasis added). If the use of an underground storage tank is converted from nonhazardous substance storage to hazardous substance storage after January 1, 1984, it must meet the new underground storage tank construction and monitoring criteria.

9. Commenters believed the definition of "existing underground tank" includes the term "has contained a hazardous substance in the past and as of January 1, 1984 had the physical capability of being used again". This is inconsistent with the definition of underground storage tank "...which is used for the storage of hazardous substances." [151]

Response: This comment is rejected. Unless an underground storage tank was closed according to the requirements of Article 7, it is probable that some residual hazardous substance remains in the underground storage tank. Therefore, the underground storage tank is still "storing" a hazardous substance and should be permitted or properly closed.

(OAL 5)

One commenter recommended that the definition of underground storage tank as defined in Section 25281 of the Health and Safety Code (formerly Section 25280) should be included in the regulations. [5]

Response: This comment is rejected. It is not necessary to duplicate this definition in the regulations.

## Article 2. Definitions of Technical Terms

### (OAL 13)

One commenter recommended that the definition of "existing underground tank" should be revised to exempt tanks that have been legally removed or destroyed between January 1, 1984 and the effective date of the regulations so that these tanks will not be subject to the monitoring requirements in the regulations [14b].

Response: This comment is rejected. A tank which has been legally removed or destroyed no longer meets the definition of "underground storage tanks" in Section 25281 (r) of the Health and Safety Code and therefore, does not come under the definition of "existing underground storage tank" in the regulations.

10. Commenters believed the proposed regulations are unclear about who are owners and who are operators of underground storage tanks. There should be further study for a fair and equitable allocation of liabilities, obligations, authority, and rights of owners/operators. [102] The definitions of "owner" and "operator" are too general. [2]

Response: This comment is rejected. The terms "owner" and "operator" are defined in the Sections 25281(f) and (g) of the Health and Safety Code [formerly Sections 25280(o) and (p), respectively]. Any person who meets the statutory definition may be responsible for compliance. Owners and operators (including lessors and leasees) should develop contractual provisions to allocate responsibility for their particular underground storage tanks. Section 25293 [formerly Section 25284.2] requires that, if the owner is not the operator, the

owner must enter into a written contract with the operator which requires the operator to monitor the underground storage tank as set forth in the permit.

11. A commenter proposes a definition of "stationary internal combustion engine". [119]

Response: This comment is rejected. Since this term is not used in the proposed regulations, there is no need to define it.

12. Commenters indicated that several definitions found in Section 2620 are also contained in the Health and Safety Code. [102, 113, 139, 140]

Response: All definitions that are contained in Chapter 6.7 of Division 20 of the Health and Safety Code have been deleted from the proposed regulations unless further clarification was needed.

13. A commenter proposed that the definition of "substantially beneath the surface of the ground" should be revised to include only underground storage tanks in contact with the soil. [139] Commenters proposed that the definition of substantially should be changed back to mean at least 50 percent. [102, 117, 165, 200]

Response: This comment is rejected. The definition has been revised to be consistent with the reauthorization of RCRA which defines "substantially beneath the surface of the ground" as being at least 10 percent of the volume of the underground storage tank being below the ground surface. Underground

storage tanks that are beneath the surface of the ground but not in contact with the soil can still leak and contaminate ground water. Owners of underground storage tanks which are in a basement or vault may attempt to demonstrate that the basement or vault provides secondary containment, but these underground storage tanks are still underground storage tanks within the definition in the statute.

14. A commenter suggested that the definition of "substantially beneath the surface of the ground" should be revised from  
50 percent of the surface area of the underground storage tank below ground to 5 or 10 percent. [159]

Response: The definition has been changed from 50 percent of the surface below the ground to 10 percent of the volume below the ground.

15. A commenter indicated that the definition of "substantially beneath the surface of the ground" has been changed from 50 to 10 percent below the surface. Questions regarding the expansion of the number of underground storage tanks now requiring permits should be addressed and communicated to persons who did not formally register underground storage tanks considering they were not "underground". [168]

Response: This comment is rejected. Underground storage tanks which should have been registered include all containers which are below normal ground surface level. This definition is broader than either the 50 percent or 10 percent definitions in the proposed regulations. Therefore, the underground

storage tanks which will require a permit should have been registered with the State Board regardless of the proposed regulations.

16. A commenter proposed that definitions for "membrane liner", "membrane manufacturer", and "membrane liner fabricator" be added to the proposed regulations. [154]

Response: The definitions have been added as requested.

17. A commenter indicated that the definition of "local agency" in the proposed regulations is inconsistent with the definition in the statute. [139]

Response: The inconsistent definition of "local agency" has been deleted from the proposed regulations.

18. Commenters requested that the term "daily" should be defined in the proposed regulations. [53, 87, 87g, 102, 138b, 139]

Response: A definition for the term "daily" was added to Section 2644(c).

"Daily" is defined to exclude weekends and holidays. Local agencies may reduce the frequency of monitoring to no less than once every three days.

19. A commenter requested that the term "farm" be defined in the proposed regulations. [111]

Response: This comment is rejected. "Farm" is not referred to in the proposed

regulations.

(Item 20 incorporated into Comment No. 3 on Page 1.7)

*20/ A commenter requested that the term "double-walled" container should be defined by the proposed regulations. [86]*

*Response/ This comment is rejected. The exemptions were narrowly construed to address the issue of the safety which is the purpose of ground water from unauthorized releases. The term exemption should not be extended to include non-ferrous agricultural products. The definition of term used by the California Department of Food and Agriculture is consistent with the State Board's interpretation of the term exemption. The definition used by California Department of Food and Agriculture is the primary production of food and fiber and the processing of raising of livestock to produce the food of fiber.*

21. A commenter requested that the term "double-walled" container should be defined. [86]

Response: A definition of "double-walled underground storage tank" has been added to the proposed regulations.

22. A commenter suggested that the term "invert" should be clarified in the proposed regulations. [111]

Response: The term "invert" was replaced with language which clarified the

requirement where it was previously used.

23. A commenter suggested that the definition of "special inspection" should be broadened to include other certified professionals. [86]

Response: This comment is rejected. Section 25280(n) is quite specific as to the qualifications of a special inspector. The State Board has no authority to broaden the definition.

24. Commenters indicated that the proposed regulations should be more specific so that the local agencies will be consistent in implementing a statewide program. Specifically, the use of the words "sumps" and "significantly" in the definitions do not provide clarity. [ 167 ]

Response: This comment is rejected. The word "significant" is already defined in the proposed regulations, and the exemption which used the word "sumps" is directly from the statute and has been eliminated from the proposed regulations.

25. Commenters suggested that the second sentence in the definition of double-walled underground storage tank should be as follows: "The outer shell must provide structural support and must be constructed primarily of non-earthen materials including, but not limited to, concrete, steel, or plastic". [87g, 138b]

Response: The definition in the proposed regulations was modified to be consistent with this suggestion.



26. A commenter pointed out inconsistencies between the proposed regulations and AB 3781. [78c]

Response: This comment is rejected. The proposed regulations are based on AB 1362. The three trailer bills, ABs 3447, 3565, and 3781, will be addressed in the subsequent revision of the proposed regulations.

27. A commenter proposed that the term "city and county" should be replaced with "county or city". [117]

Response: This comment is rejected. "City and county" was taken directly from the statute. The reason the "city and county" was used is because San Francisco is both a city and a county.

(OAL 163A)

One commenter said the definition of "hazardous substance" is ambiguous with regard to substances which are liquid in the tank, but gaseous if released from the tank. The definition needs to be clarified.[125]

Response: This comment is rejected. The definition of "hazardous substance" has been deleted from Section 2620 of the regulations because it was a duplication of the definition in Section 25281(d) of the Health and Safety Code. Section 25281(d) defines what substances are considered "hazardous substances" for the purposes of these regulations.

### 3. Article 3, New Underground Storage Tank Construction and Monitoring Standards

## Article 3. New Underground Storage Tank Construction and Monitoring Standards

### Introduction

The Legislature has, by statute, set standards for the construction of new underground storage tanks (i.e., those installed after January 1, 1984 pursuant to a permit implementing the provisions of Chapter 6.7 of Division 20 of the Health and Safety Code). This article provides additional technical information for the interpretation of the statutory standards. According to Section 25291 of the Health and Safety Code [formerly Section 25284], all new underground storage tanks must provide primary and secondary levels of containment when storing any hazardous substance. Sections 2631 and 2632 of the proposed regulations specify the construction and monitoring standards for all new underground storage tanks. As prescribed in Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(b)(7)], separate construction and monitoring standards are provided in Sections 2633 and 2634 for new underground storage tanks storing motor vehicle fuels only, although motor vehicle fuel underground storage tanks may be constructed and monitored as specified in Sections 2631 and 2632 in lieu of Sections 2633 and 2634. The final section of this article (Section 2635) provides general construction standards for primary and secondary containers indifferent to the hazardous substance stored.

### Section 2630. Applicability

### Specific Purpose

The specific purpose of this section is to describe the provisions in Article 3 and

their applicability to new underground storage tanks that contain hazardous substances.

#### Factual Basis

Section 25299.3 of the Health and Safety Code [formerly Section 25288.2(a)] directs that the State Board to develop and adopt the proposed regulations for the construction, operation, maintenance, monitoring, and testing of new underground storage tanks used for the storage of hazardous substances. The requirements for the new underground storage tanks are provided in Sections 25291 and 25292 of the Health and Safety Code [formerly Sections 25284 and 25284.1, respectively] and detailed in Sections 2631 through 2635 of the proposed regulations. These requirements are necessary to ensure that new underground storage tanks provide a level of control which will minimize the opportunity for an unauthorized release to reach and contaminate ground water through containment and early warning (monitoring) systems.

Subsection 2630(a) provides that the standards presented in Article 3 are minimum standards for construction, installation, and monitoring of new underground storage tanks. The proposed regulations are considered as minimum standards since local agencies which implement the proposed regulations may apply to the State Board for authority to implement design and construction standards in addition to those set forth in this article [Section 25299.4(b) of the Health and Safety Code [formerly Section 25288.3 (b)]].

Subsections 2630(b) and (c) delineate the sections of this article that specify

construction and monitoring standards for all new underground storage tanks and for those that store only motor vehicle fuels. Sections 2631 and 2632 specify the construction and monitoring standards, respectively, for all new underground storage tanks. The separate construction and monitoring standards for motor vehicle fuel underground storage tanks, as prescribed in Section 25291 of the Health and Safety Code [formerly Section 25284], are provided in Sections 2633 and 2634, respectively. The final section of this article (Section 2635) provides general construction standards for primary and secondary containers regardless of the hazardous substance stored.

#### Section 2631. Construction Standards for New Underground Storage Tanks

##### Specific Purpose

The specific purpose of Subsection (a) is to implement the requirements of Section 25291 of the Health and Safety Code [formerly Section 25284] that all new underground storage tanks used for the storage of hazardous substances be provided with both primary and secondary levels of containment.

The specific purpose of Subsection (b) is to require that all new underground storage tanks be product-tight.

The specific purpose of Subsection (c) is to require that all secondary containers for new underground storage tanks be constructed of materials which will contain any unauthorized release of a hazardous substance from the primary container for at least the maximum anticipated time sufficient to allow detection and recovery of the unauthorized release.

The specific purpose of Subsection (d) is to require that, for any secondary container that has come into contact with a hazardous substance and is intended for further use, it must be demonstrated that the requirements of Section 2631(c) are still achievable for the secondary container.

The specific purpose of Subsection (e) is to provide the volumetric requirements for the secondary container when only one primary container is within the secondary container or when multiple primary containers are within a single secondary container.

The specific purpose of Subsection (f) is to require that the secondary container accommodate the volume of the 24 hour, 100-year storm in addition to the volumetric requirements in Section 2631(e) if the facility is open to rainfall.

The specific purpose of Subsection (g) is to require that secondary containers, which consist of pore space in the backfill placed around the secondary container, be designed taking into consideration the physical properties of the backfill material and the method of operation of the secondary container.

The specific purpose of Subsection (h) is to require that secondary containers be equipped with a collection system capable of accumulating and allowing removal of any precipitation, subsurface infiltration, or hazardous substance and liquid leakage from the primary container.

The specific purpose of Subsection (i) is to specify performance standards for the

design and construction of the secondary container, specifically the collection sump and access casing.

The specific purpose of Subsections (j) through (l) is to establish performance standards and installation requirements for synthetic liners to ensure that these materials satisfy the requirements of Section 2631(c).

The specific purpose of Subsection (m) is to eliminate the possibility of using laminated, coated, or clad materials to satisfy the requirements of both primary and secondary containment.

The specific purpose of Subsection (n) is to provide that double-walled underground storage tanks which satisfy the requirements of Subsections 2631(b) and (c) for material construction and product-tightness satisfy the volumetric requirements for secondary containment specific in Subsection 2631(d).

The specific purpose of Subsections (o) through (r) is to provide design standards for double-walled underground storage tanks for design and monitoring of the annular space between the primary and secondary containers.

The specific purpose of Subsection (s) is to require that all primary containers and double-walled underground storage tanks subject to flotation be weighted or anchored.

#### **Factual Basis**

Much of Section 2631 is, in part, a verbatim transcription of Section 25291(a) of the

Health and Safety Code [formerly Section 25284(a)]. The justification for repeating the language contained in the statute is provided in the preamble to the proposed regulations. Subsection (a) requires that all new underground storage tanks be constructed with primary and secondary levels of containment. For containment of the hazardous substance, the primary container is an obvious necessity. Early warning leak detection practices, such as inventory monitoring and underground storage tank excavation monitoring, form the first line of defense against soil and ground water pollution or contamination due to an unauthorized release from the primary container. The secondary container provides a second line of defense against the propagation of soil or ground water contamination. It enhances the effectiveness of the monitoring system by confining the unauthorized release in the secondary container until detection is possible and, assuming adequate volume is available in the secondary container, preventing it from having an adverse impact on the beneficial uses of the underlying ground water.

(OAL 21)

A commenter objected to the requirement that all new underground storage tanks be provided with primary and secondary levels of containment. [15b] This comment is rejected. As stated in the factual basis, Section 25291(a) of the Health and Safety Code [formerly Section 25284(a)] specifically requires primary and secondary levels of containment.

The underground storage tank (primary container) must be impervious to the substance contained within it and must not be subject to physical or chemical deterioration by the substance over the useful life of the underground storage tank. Existing standards and codes for the design and construction of underground storage



tanks developed by the American Society for Testing and Materials (ASTM), National Fire Protection Association (NFPA), and Underwriters Laboratories (UL) recognize the importance of the primary container being product-tight.

As such, Subsection (b) requires the permit applicant to demonstrate compliance with this requirement according to standards and test methods developed and/or accepted by nationally recognized, independent testing organizations. Acceptable methods for determining the structural integrity (e.g., flexural strength, flexural modulus, and surface hardness) of the primary container relative to the hazardous substance stored are specified in Appendix I.

Subsection (c) interprets and clarifies the statutory requirement of Section 25291(a)(2) of the Health and Safety Code [formerly Section 25284(a)(2)]. The physical properties of the secondary container material ["sufficient thickness, density, and composition"] and the additional period which must be considered for detection of the unauthorized release ["to allow detection and recovery"] were added to the original statutory language.

Physical properties of the secondary container material must be assessed to determine the ability of the material to contain any unauthorized release for the period necessary for detection and recovery of the hazardous substance. The statutory language contained no reference to any physical properties of the material used in the secondary container; as such, the additional language was provided to require that the physical ability of the secondary container to contain the hazardous substance be considered.

An unauthorized release from the primary container requires that the secondary container contain the hazardous substance for the period from initial contact with the secondary container, to detection with the monitoring system, and to final recovery and cleanup. The statutory language only requires that the secondary container contain the unauthorized release for the period necessary for recovery and cleanup and neglects the period during initial contact and detection of the hazardous substance. If the material used for the secondary container was chosen based only on its ability to contain the hazardous substance during the recovery and cleanup phase, the secondary container could be compromised during the initial contact and the leak detection phase of containment and release the hazardous substance into the subsurface environment. Based on the structural design of the secondary container system, the method(s) of detecting the presence of any unauthorized release, and the response plan for removing the unauthorized release the total exposure time of the secondary container system must be evaluated and an appropriate liner material selected.

(OAL 109)

Due to the uncertainty associated with determining the exposure time for the secondary container system to the hazardous substance, it was originally proposed that the system be designed for "at least twice the maximum anticipated time sufficient to allow detection and recovery of the unauthorized release". Commenters questioned the need for the extended period, and the State Board's authority to promulgate proposed regulations was directly in conflict with the enabling statute. [84, 102, 19739] The proposed regulations have been modified to eliminate the extended period specified in the original draft.

A commenter suggested that, because the proposed regulations are written as "performance standards", local agencies will not be able to evaluate the necessary requirements in most cases. [113] As such, the State or Regional Boards should provide assistance and/or approvals outside of the "costly" variance process. This comment is rejected. Sections 25299.1 and 25299.3(b) of the Health and Safety Code [formerly Sections 25288 and 25288.2(b), respectively] specify that the local agency is the governmental authority for implementing the requirements of the proposed regulations. As such, it is beyond the State Board's statutory authority to provide the State Board and/or Regional Boards with any authority in determining individual compliance with the proposed regulations.

A commenter felt that due to the possibility that the secondary container material may be exposed to numerous unauthorized releases during its lifetime, the proposed regulations should require compatibility of the hazardous substance with the secondary container material for a longer duration than is stipulated in the first draft of the proposed regulations. [133] Subsection (d) was added to the proposed regulations to address this problem. Subsection (d) requires that, for any secondary container that has come into contact with a hazardous substance, it must be demonstrated that the requirements of Subsection 2631(c) are still achievable for the secondary container.

A commenter indicated that the proposed regulations should provide specifications for the materials which can be used for the secondary container. [12] This comment is rejected. First, Section 25291(a) of the Health and Safety Code [formerly Section 25284(a)] specifically requires that "performance standards" be used in developing the proposed regulations. As such, it is beyond the authority of the State Board to

develop exact "specifications for the materials". Second, even if specifications for materials could be developed for the proposed regulations, it would be an impossible task considering the number of combinations of hazardous substances and secondary container materials which would have to be examined. And finally, the proposed regulations do provide methods for verifying that materials are proper and adequate. Subsection 2631(j) and Appendix I present methods for testing synthetic liner materials for use as a secondary container; and for double-walled underground storage tanks, the requirements for the primary container [Section 2631(b)] can be applied to determine their adequacy as a secondary container.

A commenter requested that the local agency be responsible for determining whether a secondary container can contain the hazardous substance as required in Subsection (c).

[93] This comment is rejected. It is the responsibility of the permit applicant to prove to the satisfaction of the local agency that any material to be used for the secondary container meets the requirements of Subsection (c). The permit applicant must provide the local agency with any information it (local agency) feels is necessary to determine compliance with the proposed regulations.

A commenter indicated that, in the first draft of the proposed regulations, nothing was added to the general statutory mandate for secondary containment systems. [154] As such, the proposed regulations provided no guidance to local agencies or permit applicants as to the appropriate type of secondary containment systems. With respect to synthetic liners, the commenter felt that the proposed regulations should define and provide criteria which could be utilized in determining whether or not a synthetic liner can be used as a secondary container. The commenter suggested specific testing methods and statutory language to be used for determining suitability of synthetic

liners as a secondary containment system. Upon review of the performance standards (i.e., specific testing procedures, level of performance for acceptability), the proposed regulatory language (with appropriate modifications) was incorporated into the proposed regulations as Subsections 2631(j) through (k).

Section 2631(c) requires that the secondary container be capable of containing any unauthorized release of hazardous substance stored within the primary container for at least the maximum anticipated period of time sufficient to allow detection and recovery of the unauthorized release. Following cleanup of the unauthorized release and either repair of the of the primary container(s) as specified in Article 6 or closure as specified in Article 7 and replacement by a new primary container, the original secondary container if retained must be able to again contain any released hazardous substance from initial contact with the liner system to final recovery and cleanup. With previous exposure to the hazardous substance the ability of the original secondary container to contain the hazardous substance will be lessened. To assure that the original secondary container will prevent the release of the hazardous substance into the subsurface environment, it must be demonstrated that the requirements of Section 2631(c) can still be achieved or the original secondary container must be replaced.

The object of Subsection (e) is to ensure that adequate volume is available in the secondary container to prevent any hazardous substance from a ruptured primary container reaching ground water. The additional volume limits subsurface contamination within the confines of the secondary container through temporary storage of the hazardous substance for the period of time from initial contact with the secondary container to final recovery and cleanup. For multiple primary containers, a lesser volumetric requirement was used based on the probability that not all of the primary containers will rupture simultaneously and require an equivalent volume in the secondary container.

Section 25291(a)(5) of the Health and Safety Code [formerly Section 25284(a)(5)]

requires that if the facility is open to rainfall, the secondary container must be able to accomodate the volume of a 24 rainfall as determined by a 100-year storm history. As written, the precipitation requirement does not define a specific storm event, but a storm duration (24-hours) and a period of record to be considered (100-years). The wording of Section 2631(f) was altered to interpret the statute according to accepted engineering design criteria. Accordingly, using the numerical levels provided in the statutory requirement, the proposed regulations refer to a 24-hour storm with a return frequency of 100 years. The additional volume required is necessary for those facilities open to rainfall to assure that sufficient volume is available to satisfy the requirements of Subsection (e).

Commenters were concerned about the requirements of this subsection, specifically the commenters' interpretation that the "24-hour, 100-year storm" is merely a duplication of the of the existing statute and that subsequent legislation requires a "24-hour, 25-year storm" criteria. [87, 97, 102, 139] This comment is rejected. As detailed above, the "24-hour, 100-year storm" does not duplicate the existing statute, but interprets the standard in the statute. Furthermore, although Section 12(a)(5) in Chapter 1038 of the Statutes of 1984 (Assembly Bill 3565; Sher, 1984) does require that the "secondary containment...accomodate the volume of a 24-hour rainfall as determined by a 25-year storm history," subsequent legislative requirements in Chapter 1584 of the Statutes of 1984 (Assembly Bill 3781, Sher, 1984) make that particular section of Chapter 1038 inoperative and the original language repeated in Section 25291(a)(5) of the Health and Safety Code [formerly Section 25284(a)(5)] is continued.

Commenters suggested that, for purposes of clarity, the term "storage facility" be changed to "secondary container". [87, 113, 138] The proposed regulations were

changed accordingly.

A commenter considered the term "secondary containment" to be a more appropriate term for usage than "secondary container". [113] This comment is rejected.

"Container" is a more appropriate term to use since it refers to "something that actually contains" while "containment" refers to the "act of containing." Accordingly, the proposed regulations reference the physical object which is actually containing the hazardous substance (secondary container), not the act of containing (secondary containment).

Subsection (g) requires that secondary containers which are backfilled must have sufficient pore space in the backfill to satisfy the volumetric requirements Section 2631(e), in order to ensure retention of unauthorized releases from the primary container(s) into the secondary container. The available pore space in the backfill is determined by the specific retention and/or specific yield of the material. The specific retention of the backfill material is the ratio expressed as a percentage of the volume of water it will retain after saturation against the force of gravity to its own volume. The specific yield is the ratio expressed as a percentage of the volume of fluid which, after being saturated, can be drained by gravity to its own volume. The sum of the specific yield and specific retention are equal to the porosity of the backfill. As such, evaluating two of the three properties will provide the third.

The method of operating the secondary container in either the dry or wet condition needs to be considered in assessing the available pore space. When a portion of the backfill is saturated during the normal operation of the secondary container, a portion of the pore space retains fluid and that available for containment of



unauthorized releases is decreased. In addition, the location of the primary container within the secondary container must be considered in determining the available pore space volume. For example, in a completely dry backfill material where an unauthorized release completely empties the primary container, the volume of the primary container below the static elevation of fluid in the secondary container (following attainment of equilibrium) is considered part of the available pore space, thus lessening the pore space requirement. This property applies to secondary containers that are not backfilled as well.

Subsection (g) requires that all of the above be considered and evaluated using appropriate engineering methods and safety factors. The analysis should take into consideration the nonhomogeneous characteristics of the backfill material itself and that resulting from installation and compaction.

Originally, the proposed regulations required that the pore space requirements be 110 percent of that pore space or volume required in Subsections (e) and (f). This was to provide an additional safety factor to accommodate uncertainties associated with determining the pore space properties. Commenters expressed the opinion that requiring the additional ten percent volumetric requirement was beyond the State Board's authority and was inconsistent with Section 25291(a)(3) of the Health and Safety Code [formerly Section 25284(a)(3)]. [102, 139] The proposed regulations were altered to give the local agency the responsibility of determining the need for and level of any safety factors necessary in assessing the backfill properties.

A commenter was concerned regarding the need for additional volumetric pore space for product lines under "positive pressure". [29] The commenter indicated that a

leaking pipe under positive pressure will provide more release of the hazardous substance (on a per-volume basis) than an underground storage tank. This comment is rejected. The volumetric requirements for the secondary container specified in Sections 25291(a)(3) and (a)(4) of the Health and Safety Code [formerly Sections 25284(a)(3) and (a)(4)] and Section 2631(e) of the proposed regulations include the piping as part of the underground storage tank and, therefore, it is beyond the statutory authority of the State Board to require additional volume in the secondary container. Furthermore, staff concluded that the requirements for volumetric containment in Section 2631(e) and for continuous or daily monitoring in Section 2632(c) of the underground storage tank and the piping would provide sufficient containment and notification of an unauthorized release.

Subsection (h) interprets and clarifies the statutory requirement of Section 25291(e) of the Health and Safety Code [formerly Section 25284(e)]. The collection system is necessary for removal of precipitation and infiltration to maintain the volumetric requirements for the secondary container specified in Sections 2631(e) and (f). Without a removal system, secondary containers subject to precipitation and subsurface infiltration would become unusable. In the case of an unauthorized release from the primary container, the collection and removal system in conjunction with the monitoring program provides a means of determining that liquid leakage is present and for cleaning up the secondary container for possible future use.

(OAL 16, 112A)

Despite the paraphrasing in statutory language in Section 25291(e) of the Health and Safety Code [formerly Section 25284(e)], commenters misinterpreted the intent of both the statute and the proposed regulations. [22, 14b] Their interpretation was that this

subsection required a permanently installed pump or some other means of removing precipitation or hazardous substances, including liquid leakage from the primary container. In addition, a commenter provided specific language that required "... the sump and access casing be designed to collect and allow for the removal of the collected liquid" [109]. The proposed regulations were modified to provide that the objective of the collection system was "to accumulate, temporarily store, and permit removal of precipitation, subsurface infiltration, or hazardous substance released from the primary container" and did not require permanent installation of a pump to remove the fluids, only a permanent means of collecting and allowing removal of the fluids.

A commenter recommended that the proposed regulation be deleted because the regulatory language paraphrased the statutory language. [139] This comment is rejected. The purpose of this subsection is to clarify the intent of the statute which was misunderstood by a number of other commenters.

Subsection (i) provides the performance standards for the secondary containment system required under Section 25291(e) of the Health and Safety Code [formerly Section 25284(e)]. The secondary containment system consists of the secondary container, a collection sump to which the secondary container directs any precipitation, subsurface infiltration, or any unauthorized release from the primary container, and an access casing for removal of liquids for appropriate discharge and/or analytical determination. Commenters questioned the necessity of requiring a sloped floor connected to a collection sump for a visually monitored underground storage tank. [139] The proposed regulations were amended to require that the floor

of the secondary container be sloped to a collection sump, as necessary, for monitoring purposes.

Installation of the secondary container and collection sump liner is as critical to the successful operation of the secondary container as the material selected. Accordingly, the liner material should be constructed on a firm base that will provide support and prevent settling of the liner and primary container (underground storage tank) once the system is in operation. Settlement of the secondary container could adversely affect the integrity of the liner system by creating cracks through which an unauthorized release from the primary container could pass. The primary container could also be adversely affected as settlement of the underground storage tank may develop undue strain on both the underground storage tank and connections to the associated piping creating additional unauthorized releases.

Effective operation of the collection and removal system requires that the individual components of the system (e.g., collection sump, access casing, and liquid removal method) be designed as a single unit. The depth of the collection sump, the number and size of perforations in the access casing(s), and the diameter of the access casing(s) should be sized based on the requirements of the methods to be used for detection and removal of any accumulated liquid. In addition, the system must be able to remove any accumulation of hazardous substance within the time specified in Section 2631(c) of the proposed regulations.

The access casing is perforated in the region of the sump to provide a means for the collected liquid to enter the access casing. Perforating the access casing in the region of the sump (from the top to bottom) allows complete removal of the sump liquid.

The term "perforated" is intended to include all methods of perforating (as applicable with backfill materials) including an access casing screen.

No matter what method is used to initially determine that a hazardous substance has entered into the secondary container, the "final word" is actually taking a sample from the secondary container through the access casing. In order to ensure that the samples are representative of the material in the secondary container, the access casing must not donate, capture, or mask constituents for which analyses will be made. Perforations in the access casing provide the conduit for discharging liquid from the secondary container. An access casing that is constructed of materials not compatible with the hazardous substance stored in the primary container may have damaged or even closed perforations which would limit the access casing's usefulness during any sampling and cleanup and removal programs.

The access casing is extended to the ground surface (plus an additional height as necessary) to locate the system for its intended uses. The proposed regulations originally required a locked cap to prevent surface runoff and drainage from entering the secondary container directly, while preventing intentional contamination for vandalism. A commenter indicated that it was unnecessary to have a locked, waterproof cap on each access casing if the access casing was within a secured facility. [113] The proposed regulations were changed to exempt casings placed within a secured facility from the requirement of a locked waterproof cap.

(OAL 28B)

A commenter recommended that for new underground storage tanks the use of double-walled tanks or subsurface bunkers (as a secondary container) should eliminate

the requirement for monitoring wells [27b]. This comment is rejected. Double contained systems which satisfy the requirements of new construction standards (Section 2631) for underground tanks storing materials other than motor vehicle fuels do not require monitoring wells other than the access casing to the space between the primary and secondary containers. The access casing specified in Section 2631 (i) of the regulations is required by statute in Section 25292(e) of the Health and Safety Code [formerly Section 25284(e)]. Monitoring wells installed at locations where existing tanks (without secondary containment) are present may be removed when such tanks are replaced by tanks with secondary containment, unless needed for cleanup or remedial action. Underground tanks used for the storage of motor vehicle fuel do require additional monitoring wells. These additional monitoring requirements, however, are mandated by statute in Sections 25291(a)(7)(D) and (E) of the Health and Safety Code [formerly Section 225284(a)(7)] and Section 252922(b)(3) of the Health and Safety Code [no former section].

The use of synthetic liners as secondary containment systems raises several issues with respect to the requirements of Section 2631(c). A leak in the primary container requires that the secondary container store the hazardous substance for the period of time from initial contact with the secondary container to detection with the monitoring system and to final recovery and cleanup. In the case of underground storage tanks constructed on a bed of gravel or sand, even after clean-up occurs, the hazardous substance may remain in the pore space of the sand or gravel in contact with the liner. Thus, the liner may be required to prevent release of the hazardous substance for a substantial period. In addition, there are uncertainties as to the actual duration of detection, recovery, and cleanup, as well as uncertainties concerning potential response of the secondary liner material to the substance under

actual field conditions. Finally, liners can be easily damaged in the case of an improper installation.

Accordingly, Subsection (j) establishes performance standards for synthetic liner materials which provide the minimum necessary to insure that the structure of the secondary containment system not weaken as a result of contact with the hazardous substance. The combination of material properties specified in the proposed regulations--permeation rate, volume swell, change in elongation, brittleness, rate of transport and rate of solubility--together provide assurance that the synthetic liner meets minimum standards for material integrity over time in the ground and in contact with the hazardous substance. A 24-hour test period separates out those liner materials that have material properties which would allow a hazardous substance to escape immediately after contact and then briefly contain the substance while further deterioration occurs. For example, some synthetic liner materials react initially to contact by a hazardous substance by swelling which results in a temporary reduction in permeation, but subsequent deterioration in the material's structural capacity and ability to contain the hazardous substance may occur. The 24-hour period is of sufficient duration to detect such a loss of structural integrity.

Installation of the synthetic liner is as important to the overall success of the secondary container as material selection. Liner installation is a relatively complicated task and should be performed by a qualified contractor, paying attention to important details such as (1) compaction of the excavation base, (2) stability of slopes of the excavation, (3) removal of all debris and rubble that could puncture the lining, and (4) careful placement of the liner and bonding of seams in accordance with the manufacturers specifications. Accordingly, Subsections (k) and (l) require

that the excavation for the liner be prepared to the liner fabricator's specifications and the liner be installed under the supervision of a representative of the synthetic liner fabricator or a contractor certified by such a fabricator.

(OAL 12C, 26A)

A commenter suggested that all secondary containment systems be tested after installation to assure that such systems are operative and leak tight [14b.22d]. This comment is rejected. As previously discussed the requirements for installation of synthetic membrane liners is contained in Subsections 2631(B) and 2633(e)(4). These subsections specifically require that the liner "... be installed under the supervision of a representative of the membrane liner fabricator or a contractor certified by such a fabricator". It is common practice for the above specified individuals to perform field testing of the secondary container liner material to determine its effectiveness as a "leak tight " containment system. In addition, to satisfy the requirements of Section 2631(c) of the proposed regulations, the underground storage tank owner/operator must demonstrate to the local agency the ability of the secondary container to contain any unauthorized release of the hazardous substance. Accordingly, the local agency may require the owner/operator to demonstrate the integrity of the secondary container system (composed of any material) as a prerequisite for permitting the underground storage tank installation.

Subsection (m) combines the requirements specified in Sections 25281(m) and 25291(a)(6) of the Health and Safety Code [formerly Sections 25280(j) and 25284(a)(6), respectively]. Section 25281(m) [formerly Section 25280(j)], qualifies "laminated, coated, or clad materials [as] being considered single walled" and Section 25291(a)(6) [formerly Section 25284(a)(6)] specifies that "single-walled containers do not fulfill the



requirement of an underground storage tank providing both primary and secondary containment."

As in case of a single-walled underground storage tank, double-walled underground storage tanks must satisfy the requirements for material construction and product-tightness. Each double-walled underground storage tank is considered a separate primary and secondary container subject to the A commenter indicated that the volumetric requirements for direct precipitation specified in Section 2631(f) should be included for double-walled underground storage tanks.[113] This comment is rejected. If the secondary container completely encloses the primary container, there is no opportunity for direct precipitation to enter the annular space between the two walls and the requirements of Section 26319 (f) are not applicable.

(OAL 84C)

Commenters requested that the exemption from secondary containment for pressurized piping distributing motor vehicle fuel be applicable to all new underground storage tanks or at least those underground storage tanks which comply with Sections 2631 and 2632 of the proposed regulations and store motor vehicle fuels only. [113, 113d] Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] [Section 2633(f) of the proposed regulations] provides the pressurized piping exemption specifically for motor vehicle fuel tanks which are constructed under the standards provided in Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] [Section 2633 of the proposed regulations] and monitored as specified in Sections 25291(b) and 25292(b)(4) [formerly Sections 25284(b) and 25284.1(b)(3), respectively] [Section 2634 of the proposed regulations]. This comment is rejected. It is our interpretation that the Legislature's intent with respect to these statutes was to develop specific regulations to accommodate service stations, and that it was not their intent that this exemption be applied to other underground storage tanks which are already subject to less stringent monitoring requirements (i.e., no hydrostatic testing or inventory reconciliation required) due to complete secondary containment.

A commenter requested that, in addition to providing that double-walled underground storage tanks which satisfy the requirements of Section 2631(b) and (c) satisfy the volumetric requirements of Section 2631(e)(1), the proposed regulations should require that the annular space be "continuous and interconnective so that...fluid flow will not be restricted in any direction." [22] The commenters first concern was resolved in subsection (n), and the provision of "a continuous and interconnective annular space" was addressed by adding Subsection 2631(q).

Subsections (o) through (r) present additional structural standards for double-walled underground storage tanks to satisfy the requirements of Section 25291(b) of the Health and Safety Code [formerly Section 25284(b)]. For double-contained systems, the space between the containers must be monitored to detect the entry of any hazardous substance from the primary container or intrusion of water from the subsurface environment through the secondary container. To this end, the annular space (the space between the primary and secondary containers) must be designed to allow for monitoring as specified in Subsection (o). One method of mechanical monitoring on a daily basis is to "stick" the annular space or a vertical tube hydraulically connected to the bottom of the annular space. Under normal operating conditions, inserting a gauging stick into the annular space or a hydraulically connected gauging tube would not result in any damage to either system. If the stick is dropped rather than lowered into these gauging devices, it can result in a crack or hole in the secondary container allowing potential release of the hazardous substance. As such, a striker plate or some other device approved by the underground storage tank manufacturer should be used to protect the underground storage tank [Subsection (p)].

(QAL 64)

Commenters recommended that double-walled tanks of steel construction not be allowed due to their susceptibility to corrosion in the annular space (exterior surfaces of the primary container and interior surfaces of the secondary container).[91, 91b]  
This comment is rejected. As suggested by the commenters, the annular space of a double walled tank is subject to moisture condensation over time and subsequent internal corrosion. Information provided by other commenters [22, 26], however, indicated that internal corrosion of this nature would be minimal and be more

detrimental to the integrity of the secondary container when enhanced by the repeated stresses associated with "stick gauging". Accordingly, a "striker plate" is required for the annular space of a double-walled tank that is manually monitored.

(OAL 3C, 25)

A commenter stated that striker plates are unnecessary in the annular space of metallic, double-walled underground storage tanks [22b, 22d]. This comment is rejected. Despite the commenter's opinion, the annular space of a double-walled underground storage tank that is manually monitored is subject to accumulation of water due to condensation. Opening of the monitoring port(s) during the "sticking" of the annular space will provide moisture that can condense in the annular space and promote internal corrosion. The potential for internal corrosion combined with the abuse the secondary container would experience from the "sticking" process would promote damage and potential break-through of the secondary containment wall.

One method for monitoring a double-walled underground storage tank is based on the premise that any loss of hazardous substance from the primary container will drain to a central location where it can be detected by a monitoring device or method. The annular space must be so designed that the drainage of any unauthorized release from the primary container will not be impeded and reach the central drainage location for monitoring as specified in Subsection (q). An integral part of this monitoring system is the installation of the underground storage tank. The underground storage tank must be sloped to drain to a central location so that either an unauthorized release from the primary container or the intrusion of water from outside of the secondary container will reach the central monitoring location. If the underground storage tank is sloped in the opposite direction (away from the central location and monitoring

system), a leak in either the primary or secondary container could go undetected. Some monitoring methods do not require that the double-walled underground storage tank be sloped to a central location. These methods include continuous pressure or vacuum monitoring and measuring changes in the hydrostatic level of a fluid completely filling the annular space of the double-walled underground storage tank. These types of installations are exempted in Subsection (q).

(OAL 15)

A commenter proposed that the criteria for acceptable double wall tanks require "...that a leak in any part of the primary wall will be directed to the monitoring part(s) or devices(s) and that the two walls be essentially independent of each other" [14b]. The proposed regulations were changed to include these requirements in Section 2631(q).

As specified in Section 2635(b)(1), steel and fiberglass reinforced plastic underground storage tanks must be fabricated and designed to standards developed by a nationally recognized, independent testing organization. Modifications which could be made to the underground storage tank by the owner and/or installer may prevent the underground storage tank and/or monitoring system from functioning as originally designed. Consequently, Subsection (r) was included in the proposed regulations to assure that any special accessories, fittings, coatings, or linings that were added and not inherent within the initial design of the underground storage tank must be approved by a nationally recognized, independent testing organization, or a demonstration of integrity with the underground storage tank to the local agency to assure the structural stability of the underground storage tank and the operation of the monitoring system.

Underground storage tanks are subject to flotation when the backfill becomes saturated with water. Because of their additional weight, steel underground storage tanks are less susceptible to flotation than fiberglass underground storage tanks, and smaller underground storage tanks are less bouyant than larger underground storage tanks. If adequate cover is not provided, the bouyant forces can push the underground storage tank through the ground surface, damaging the underground storage tank, and resulting in an unauthorized release.

Weighting the underground storage tank is accomplished by burying the underground storage tank deeper and/or by adding a thicker surface (cover) slab. The weight of the overburden holds the underground storage tank down. Anchoring involves strapping the underground storage tank to a reinforced concrete anchor pad buried underneath the bedding, or strapping it to reinforced concrete deadmen layed along each side and parallel to the underground storage tank. The weight of the concrete and the overburden on top of the slab or deadmen provides the necessary hold-down force. Anchoring and/or weighting of the underground storage tank as specified in Subsection (s) must be accomplished according to manufactures standards to insure that undue stress is not applied to the underground storage tank at the points where the underground storage tank is strapped.

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## **Section 2632. Monitoring Standards for New Underground Storage Tanks**

### **Sections 2632(a) and 2632(b)**

#### **Specific Purpose**

The specific purpose of Subsections (a) and (b) is to provide information concerning the applicability of Section 2632 to new underground storage tanks and to require that the owners or operators of these underground storage tanks implement a monitoring program approved by the local agency and required by permit.

#### **Factual Basis**

Sections 25284 and 25291(b) of the Health and Safety Code [formerly Sections 25283 and 25284(b), respectively] provide that every new underground storage tank be issued a permit for operation by the local agency and be designed and constructed with a specified monitoring system, respectively. Subsection (a) stipulates that Section 2632 provides the monitoring requirements for new underground storage tanks constructed pursuant to the standards of Section 2631. Subsection (b) requires that, as part of the permitting program by the local agency, the monitoring program be approved by the local agency and be required in the permit.

### **Section 2632(c)**

#### **Specific Purpose**



The specific purpose of this subsection is to provide performance standards for monitoring the space between the primary and secondary containers, either by visual monitoring or by detecting the hazardous substance using manual or continuous monitoring systems.

#### Factual Basis

To satisfy the requirements of Section 25291(a) of the Health and Safety Code [formerly Section 25284(b)], Section 2632(c) provides those components which must be incorporated by the permittee into any monitoring program which utilizes either visual monitoring or monitoring by manual or continuous systems to detect the hazardous substance in the space between the primary and secondary containers. The monitoring program consists of the following components: (1) the monitoring method used for detecting the presence of the hazardous substance, (2) the routine monitoring procedure used with the monitoring method, and (3) the response plan in the event that an unauthorized release occurs.

#### 1. Monitoring Methods

The first component of the monitoring program is the monitoring method, which must be able to detect the presence of water and/or the hazardous substance in the space between the primary and secondary containers. The proposed regulations provide two specific types of monitoring methods--visual inspection covered in Section 2632(c)(1) and mechanical monitoring covered in Section

2632(c)(2). Each of these methods is presented in detail in the following discussion.

a. Visual Monitoring

Commenters questioned the decision in the first draft of the proposed regulations not to allow visual inspection as an acceptable method of monitoring the primary container for an unauthorized release. [86 110] It was not the intent to preclude visual inspection as an acceptable monitoring method for new underground storage tanks. Since this method was approved for existing underground storage tanks, staff assumed that the regulated community would infer its acceptability for new underground storage tanks as well. Based on the comments, this was an erroneous assumption, and the proposed regulations have been amended to include the requirements for visual inspection of new underground storage tanks.

Subsection (c)(1) provides those components which must be incorporated into any program by the permittee when implementing visual inspection of the primary container. Visual inspection provides the most direct and reliable method of detecting unauthorized releases from underground storage tanks. As such, Subsection (c)(1)(A) requires that all exterior surfaces of the underground storage tank and the surface of the floor directly beneath the underground storage tank be directly monitored. Using visual monitoring as the only method of monitoring the primary container requires that all of the underground storage tank and the floor beneath the underground storage tank

be capable of being observed, or unauthorized releases could go undetected.

Commenters questioned the requirement that the underground storage tank not rest directly on the surface of the secondary container or vault. [110b, 167] Commenters felt that if a leak developed in the concealed area between the underground storage tank and the secondary container, the liquid would leak into the area where it is visible before it ever passed through the secondary container. This comment is rejected. Although the hazardous substance may not pass through a structurally sound portion of the secondary container, that portion of the secondary container underneath the underground storage tank could be damaged or cracked (as in the case of a concrete vault); and an unauthorized release could pass through the damaged area underneath the underground storage tank undetected by the visual inspection.

The objective of the visual monitoring program is to detect both the potential for and the presence of an unauthorized release on the surface of the underground storage tank. Monitoring on a daily or more frequent basis is the optimum frequency for detecting the presence of an existing unauthorized release, since this minimizes the amount of time that the unauthorized release actually occurs. Evaluating the exterior of the underground storage tank for the potential of an unauthorized release includes checking the surface for material fatigue (i.e., surface cracks, construction imperfections) and corrosion. Visual inspection for this purpose requires less frequent, but more extensive, observations. As such, Section 2632(c)(1)(B) of the proposed regulations requires that visual inspections be performed on a daily basis except on

weekends and recognized state and/or federal holidays. At the discretion of the local agency, the monitoring frequency may be more frequent or, under specified circumstances, less frequent with the minimum frequency not less than once per week.

Commenters believed that the State Board has no authority to specify monitoring frequency since the statute grants this authority to the local agency. [110b, 138b] This comment is rejected. The enabling legislation does not provide the local agency with the authority to specify the monitoring frequency for visual inspection of new underground storage tanks. Section 25299.3 of the Health and Safety Code [formerly Section 25288.2] grants the State Board the authority to specify monitoring requirements [Section 25291(b) of the Health and Safety Code [formerly Section 25284(b)]]. Requirements for adequate monitoring necessarily include the frequency of monitoring.

A commenter suggested that the frequency for visual monitoring be altered from "daily" to "daily, except on weekends and recognized state and/or federal holidays". [165] The suggested wording was incorporated into the proposed regulations.

A commenter recommended extending the daily visual monitoring requirement to monthly (or more frequently if designated by the local agency). [140b] The commenter contended that the primary objective of the visual monitoring program was to determine the potential for an unauthorized release from observation of the underground storage tank. As such, the monthly period

between inspections would provide a better opportunity for the inspector to observe a "gradually changing processes" such as corrosion on the surface of the underground storage tank. This comment is rejected. As discussed above, the intent of visual monitoring was not only to detect the potential for an unauthorized release but also the actual presence of an unauthorized release. By extending the time period between visual observations to a month, an unauthorized release could go undetected for a substantial period, risking a release to the environment; and the inspection program would essentially be relying entirely on the inspector's ability to detect potential unauthorized releases.

Subsections (c)(1)(C) and (c)(1)(D) contain the minimum required components for actual observation of the underground storage tank and the responses that must be taken upon the discovery of a suspected unauthorized release.

(OAL 114)

A commenter felt that there was no reason to measure and record the liquid level in the underground storage tank every time an inspection takes place.  
[110b] This comment is rejected. Recording the liquid level in the underground storage tank during each visual observation [as specified in Subsection (c)(1)(C)] is essential to determine if an unauthorized release from the upper portion of the underground storage tank could occur due to a hole in that area of the underground storage tank. If all monitoring was performed when the underground storage tanks was less than full, a leak which occurs when the underground storage tank is full would never be

detected. Reconciling any inventory loss with a consistent elevation in the underground storage tank would indicate that an unauthorized release has occurred from that portion of the underground storage tank above the consistent elevation.

Determining if an unauthorized release has actually occurred and the subsequent actions are the objectives of Subsection (c)(1)(D). An unauthorized release can be determined directly by testing the observed liquid on the surface of the underground storage tank by laboratory or field analysis, or indirectly by testing the underground storage tank for leakage using the testing methods specified in Section 2643 of the proposed regulations. Field analysis for an unauthorized release was included because condensation can form on the underground storage tank surface or spilled liquids may be known to have contacted the underground storage tank surface; and, therefore, it is possible to determine by field observation and/or analysis whether or not the observed liquid is the hazardous substance contained in the underground storage tank. The second draft of the proposed regulations did not include field analysis as an appropriate method for determining the presence of an unauthorized release and, as a result, was questioned by a commenter. [140b] The proposed regulations were changed to include this method of analysis. The final action which may be required by the local agency, whether or not an unauthorized release has been determined, is to remove all of the hazardous substances from the underground storage tank and, as required, from the secondary container.

b. Physical Monitoring

The first draft of the proposed regulations [Section 2632(c)] required monitoring of the space between the primary and secondary containers by using either a water level detector or a hazardous substance sensor. These devices were required to detect within the sump of the secondary container 0.5 inches of the hazardous substance or liquid. The annular space of a double-walled underground storage tank could only be monitored using a pressure-sensing device. Commenters objected to the above requirements as being overly prescriptive and precluding the use of alternative monitoring systems. [50, 78, 113, 117] The proposed regulations were amended to allow additional monitoring methods and provide more performance-oriented regulations. The monitoring methods which can be utilized are discussed below.

A number of different physical monitoring methods [Section 2632(c)(2)] may be used to detect the hazardous substance in the secondary container. The first method is the "liquid level indicator". This method is applicable to both "wet" and "dry" systems. The "dry" system is designed not to contain liquid within the secondary container during normal operating conditions, while the "wet" system does. An increase of liquid above the normal operating level of the system would indicate either the presence of the hazardous substance or subsurface infiltration. This monitoring method provides an indirect indication that an unauthorized release has occurred; and, consequently, as required in Subsection (c)(2)(C), the monitoring program must set forth a procedure for determining the presence of the hazardous substance.

Acceptable methods for volatile and nonvolatile hazardous substances include continuously operated mechanical or electronic devices; manual determinations using mechanical, electronic, or "stick" readings; and visual determinations.

The hazardous substance sensor is the second physical method available for use. This monitoring method utilizes a sensing device for detecting the presence of the hazardous substance. Some devices can distinguish between water and the hazardous substance in the primary container, although this is not required by the proposed regulations. Because these devices depend on contact of the sensing element with the hazardous substance in liquid form, the use of the device is independent of the volatility of the hazardous substance.

(OAL 37)



A commenter was confused as to whether a "hazardous substance sensor" included continuous, electronic monitoring systems which determine the presence of the hazardous substance either quantitatively or qualitatively. [78c] This comment is rejected. The proposed regulations clearly state in Subsection (c)(2)(A) and Table 3.1 that the hazardous substance sensor is a monitoring method which may be used either continuously or for daily manual monitoring and may include either qualitative or quantitative determinations of the presence of the hazardous substance.

The third method of physical monitoring is using a vapor monitoring system. This method utilizes a sensing device which detects the presence of the vapor of the hazardous substance. Consequently, vapor monitors can only be used when the volatility of the hazardous substance is sufficient to allow detection with the vapor monitoring system. In order to comply with the requirements of Section 25291(b) of the Health and Safety Code [formerly Section 25291(b)], the monitoring system must also detect the intrusion of water into the secondary container. As such, if the vapor monitoring system cannot detect the presence of water, additional monitoring must be incorporated to do so.

The final available method of physical monitoring is the pressure or vacuum loss detector. The pressure sensor is used to monitor the annular space between the walls (primary and secondary container) of a double-walled underground storage tank. The annular space is either pressurized or has a vacuum drawn. When a leak occurs, the pressure drops or vacuum is lost,

and an alarm system is activated. Due to the additional stress applied to the container walls from the pressure or vacuum system, the proposed regulations require that the use of this monitoring system be approved for the underground storage tank by a nationally recognized, independent testing organization. The physical monitoring methods which shall be utilized by the permit applicant are summarized in Table 3.1 of the proposed regulations.

(OAL 17, 32C)

Commenters objected to the requirement in the first draft of the proposed regulations [Section 2632(f)] that double-walled underground storage tanks be monitored only with a pressure sensor in the annular space between the double walls. [14b, 22, 53, 87, 93, 102, 109, 138] The regulations were modified as a result of these comments such that double-walled underground storage tanks may use other monitoring methods, if approved by the local agency.

(OAL 112B)

A commenter recommended that inventory reconciliation be provided as an alternative to the monitoring required in Section 2632(c) [Sections 2632(e) and (f) of the first draft of the regulations] for the space between the primary and secondary containers for motor vehicle fuel tanks having a capacity of less than 1,100 gallons [109]. This comment is rejected. Section 25291(b) of the Health and Safety Code [formerly Section 25284 (b)] does not provide any exemption for motor vehicle fuel tanks of less than or equal to 1,100 gallons from the monitoring requirements for new tanks [Section 2632(c)] for

the space between the primary and secondary containers.

(OAL 83B)

A commenter requested that the regulations define "pressure sensor" [112]. The proposed regulations were changed to eliminate the reference to a "pressure sensor". Instead the regulations require the use of a "pressure or vacuum loss detector" to detect unanticipated changes in the pressure between primary and secondary containers caused by leakage. A simple definition is provided in Table 3.1 of the proposed regulations.

The primary objectives of any monitoring method are to detect an unauthorized release before the hazardous substance spreads beyond the confines of the secondary container and to minimize the time that the secondary container may be exposed to the hazardous substance. Accordingly, the shortest period of time (frequency) between monitoring events would provide the earliest detection of an unauthorized release and satisfy both objectives. As required in Subsection (c)(2)(A), a continuous monitoring system which is connected to an audible/visual alarm system and routinely performs the required monitoring on a periodic or cyclic basis throughout the day would provide the earliest indication that an unauthorized release had occurred.

Although continuous monitoring provides the most frequent observations for an unauthorized release, it may not be practical under all circumstances. The availability, reliability, and cost of some continuous monitoring devices may limit their usefulness for underground storage tanks, especially for the small, individual underground storage tank owner. As such, it would not be

appropriate for the State Board to only allow the use of devices and/or methods whose applicability is dubious. Consequently, daily manual monitoring was provided in Subsection (c)(2)(B) as an acceptable alternative to continuous monitoring. Manual monitoring includes the use of mechanical, electronic, or stick readings to detect the presence of the hazardous substance either directly or indirectly. Daily or more frequent monitoring (as required by the local agency) was required to simulate the continuous response of an automatic system and, thus, satisfy the objectives of the monitoring method.

(OAL 32B. 51)

The first draft of the proposed regulations [Section 2632(c)] required that all physical monitoring methods use a continuous sensor which was capable of activating a strategically located, above-ground alarm system. This requirement was criticized by commenters. [4a, 4b, 22, 49, 53, 82, 84, 87, 97, 133, 139] Commenters contended that requiring continuous monitoring was unnecessary, not cost effective, and beyond the State Board's authority. According to the commenters, monitoring on a periodic basis, along with inventory reconciliation, was sufficient to detect unauthorized releases from the primary container; and any unauthorized release would be captured by the secondary container. This comment is rejected. First, a continuous monitoring program is not unnecessary. As previously discussed, the objective of any monitoring method for underground storage tanks is to detect an unauthorized release as soon as possible. A continuous monitoring system provides the earliest indication that an unauthorized release has occurred. Periodic monitoring extends the period for any unauthorized release to be

stored in the secondary container before detection, which is not the intent of either the enabling legislation or the proposed regulations.

Second, the commenters' concern with the cost effectiveness of continuous monitoring is unfounded. At present, the initial cost of installing a continuous monitoring system could pose an economic hardship on the small, individual underground storage tank owner. Over time, however, the cost of daily manual monitoring exceeds the initial and annual maintenance costs of a continuous monitoring system. Using the costs provided in the updated Fiscal Impact Statement for a continuous monitoring system and manual monitoring as required in Subsections (c)(2)(B), it was found that the continuous monitoring system was more cost effective than manual monitoring after six years of operation. This was based on current costs for continuous monitoring systems which will certainly decrease as the marketplace becomes more competitive and makes the continuous monitoring more cost effective over a shorter operational period. For example, one proposed mechanical method of continuous monitoring has an anticipated cost of 25 percent of that for current electronic systems. This proposed system would become cost effective within two years of operation.

Third, using inventory reconciliation for detecting an unauthorized release is not an appropriate monitoring alternative for new underground storage tanks. Section 25291(b) of the Health and Safety Code [formerly Section 25284(b)] makes no reference to the use of inventory reconciliation as an appropriate monitoring method. Furthermore, because the legislation [Section 25291(b)] of

the Health and Safety Code [formerly Section 25284(b)] requires that the monitoring method "detect the entry of the hazardous substance into the secondary containment", it was interpreted that this only included monitoring methods that detected the presence of the unauthorized release in the secondary container (e.g., visual and physical monitoring methods).

Finally, requiring continuous monitoring is not beyond the authority designated to the State Board. Section 25299.3 of the Health and Safety Code [formerly Section 25288.2] grants the State Board authority to specify monitoring requirements [Section 25291(b) of the Health and Safety Code [formerly Section 25284(b)]]. Requirements for adequate monitoring necessarily include the frequency of monitoring.

(OAL 38, 39A)

A commenter felt that Subsection (c)(2) omitted the use of continuous monitoring systems as specified in Chapter 1584 of the Statutes of 1984 [Assembly Bill 3781; Sher, 1984] which requires "a continuous leak detection and alarm system which is located in monitoring wells adjacent to an underground storage tank and which is approved by the local agency". [78c] This comment is rejected. First, the quoted section of Assembly Bill 3781 pertains to the monitoring requirements for existing underground storage tanks and new motor vehicle fuel tanks, neither of which are subject to the requirements of Section 2632(c)(2). And second, the requirements of Assembly Bill 3781 are not applicable to the proposed regulations because the regulations were noticed with respect to the original legislation, Chapter 1046

of the Statutes of 1983 [Assembly Bill 1362; Sher, 1983]

Commenters requested that the proposed regulations define continuous monitoring as the use of "automatic equipment which routinely performs the required monitoring on a periodic basis throughout each day". [86, 112] This definition appears in Section 2621 of the proposed regulations.

A commenter recommended that the level of standing liquid in the continuous monitoring system be raised to 2 inches. [49] This comment is rejected. The requirement for the monitoring system to detect a specific depth of the hazardous substance was amended due to other comments to provide more performance-oriented regulations.

A commenter requested approval by the State for all testing and monitoring equipment. [49] This comment is rejected. It is recognized that there are advantages in using certified or approved testing and monitoring equipment. The statute does not establish a certification or approval program for underground storage tank testing or monitoring equipment and, as such, it is beyond the State Board's authority to require that the State be the entity for performing such a program.

Subsection (c)(2)(C) requires that for those methods of monitoring which do not detect the presence of the hazardous substance directly, such as liquid level measurements, the monitoring program must specify the proposed method(s) for determining if the detected fluid is the hazardous substance.

It is important that the local agency has the opportunity to review the appropriateness of these detection methods. Depending on the mode of operation of the secondary container system, some detection methods or levels may not be appropriate. For example, if the secondary container does not normally contain any fluid, the fluid detected in the secondary container would probably be the hazardous substance at the same concentration as in the underground storage tank. As such, a qualitative test for the hazardous substance may be sufficient for detection purposes. Conversely, if the secondary container does contain fluid during normal operation, fluid detected in the secondary container could contain the hazardous substance in a diluted form. A quantitative test to specific detection limits would then be required to determine the presence of the hazardous substance.

(OAL 32A)

Commenters requested that the reference to "best detection limits" be removed from the proposed regulations. [53, 87, 93, 110] The proposed regulations were modified in response to this comment.



## 2. Monitoring Procedure

The second component of the monitoring program is the routine monitoring procedure used with the monitoring method. The required procedure is contained in Subsection (d). Subsection (d)(1) requires that the permittee provide the local agency with a written procedure which details (a) the frequency of the monitoring method, (b) the methods and equipment to be used for performing the monitoring, (c) the location(s) from which the monitoring will be performed, (d) the name(s) or title(s) of the person(s) responsible for performing the monitoring and/or maintaining the equipment, and (e) the reporting format. It is important that the local agency review each aspect of the monitoring procedure.

The success of the monitoring program relies on the methods used for determining the presence of the hazardous substance and the ability of facility personnel to perform the required monitoring. For example, if the hazardous substance is volatile, a continuous monitoring system may require that the facility operator "test" the system periodically by subjecting the sensing unit to the hazardous substance vapor. A manual monitoring system, however, may require that samples be taken using specific procedures and equipment to minimize volatilization of the hazardous substance. In this case, the facility personnel who perform the monitoring would have to be trained in obtaining the samples. Therefore, it is critical to the success of the program that the local agency have the opportunity to review the procedure which the permittee proposes to use in determining the presence of the hazardous substance and have knowledge of the specifics of the program.

### 3. Response Plan

The final component of the monitoring program is the response plan. This is contained in Subsection (d)(2). The purpose of requiring the response plan is to demonstrate to the satisfaction of the local agency that any unauthorized release will be removed from the secondary container within the shortest possible time and no longer than that time consistent with the ability of the secondary container to contain the hazardous substance. The response plan must include a description of the proposed methods and equipment to be used [Subsection (d)(2)(A)] and a list of individuals who could authorize the work [Subsection (d)(2)(B)]. It is important that the local agency review the proposed methods and procedures for removing the hazardous substance once it has been detected in the secondary container. The local agency must determine that the proposed methods and equipment are suitable and accessible within the time available (based on the ability of the secondary container to contain the hazardous substance) for removing the hazardous substance from the secondary container. If the actual response time for removing the hazardous substance exceeds the time that the secondary container will contain the unauthorized release, the hazardous substance would be released into the subsurface environment.

A commenter questioned the need to include the location and availability of any required equipment not permanently on-site. [113c] This comment is rejected. As discussed above, if the response plan has a critical time line for removing the hazardous substance from the secondary container, it is necessary for the

permittee and the local agency to know the availability of any required equipment in order to remove the unauthorized release before exceeding the time that the secondary container can control the release.

A commenter requested that the State Board clarify the language of Subsection 2632(d)(2)(A) of the latest draft of the proposed regulations. [87g] The need for clarification resulted from a typographical error in the draft, which was subsequently corrected in the proposed regulations.

A commenter suggested that owners of multiple facilities should be allowed to develop a unified response plan applicable to all regulated sites. [117c] The proposed regulations do not preclude the use of unified response plans. Each plan, however, must be developed for a uniformly used secondary container and monitoring program and be approved as such by the appropriate local agencies.

(OAL 111)

A commenter questioned the Board's authority to require a response plan.[139c]. This comment is rejected. In developing the proposed regulations, it was the State Board's responsibility to interpret the intent of the statute and provide standards which must be met to satisfy that intent. Protection of the ground water cannot be assured unless a response plan is developed. In the absence of a response plan the local agency will have no method of evaluating whether or not the hazardous substance can be removed from the secondary container within the shortest possible time and no longer than that time consistent with the ability of the secondary container to contain the hazardous substance. Exceeding

this time period would allow the unauthorized release to pass through the secondary container and migrate toward the ground water, thereby not providing the protection required in the statute.

#### References

New York State Department of Environmental Conservation; Siting Manual for Storing Hazardous Substances--A Practical Guide for Local Officials; Department of Environmental Conservation; Albany, New York, October 1982.

New York State Department of Environmental Conservation; Technology for the Storage of Hazardous Liquids. A State-of-the-Art Review; Department of Environmental Conservation; Albany, New York, June 1983.

New York State Department of Environmental Conservation; Criteria and Guidance for Underground Storage of Petroleum (Draft); Department of Environmental Conservation; Albany, New York; August 1983.

New York State Department of Environmental Conservation; Recommended Practices for Underground Storage of Petroleum; Department of Environmental Conservation; Albany, New York; May 1984.

Petroleum Association for Conservation of the Canadian Environment; Underground Tank Systems. Review of the State of the Art and Guidelines; Pace Report No. 82-3; Ottawa, Ontario, Canada; February 1983.

## **Section 2633. Construction Standards for New Motor Vehicle Fuel Tanks**

### **Specific Purpose**

The specific purpose of Subsection (a) is to specify the alternate construction standards for new underground storage tanks which only contain motor vehicle fuels.

The specific purpose of Subsection (b) is to specify acceptable materials for the construction of the primary container of motor vehicle fuel tanks.

The specific purpose of Subsection (c) is to subject those primary containers used for the storage of motor vehicle fuels which do not meet the material construction requirements of Section 2633(b) to the construction standards of Section 2631.

The specific purpose of Subsection (d) is to require that the secondary container used for motor vehicle fuel tanks be constructed of materials which will contain any unauthorized release of a hazardous substance from the primary container for at least a period estimated to be sufficient to allow detection of leakage from the primary container.

The specific purpose of Subsection (e) is to establish performance standards and installation requirements for synthetic liners to ensure that these materials satisfy the integrity requirements of Section 2631(c).

The specific purpose of Subsection (f) is to provide the criteria which must be considered in proving that the leak interception and detection system and response

plan will preclude the contact of any unauthorized release of a hazardous substance with ground water.

The specific purpose of Subsection (g) is to provide an exemption to the requirement for a leak interception and detection system for pressurized piping systems. To qualify for the exemption, the pressurized piping system must be monitored according to the requirements of Section 25292(b)(3) of the Health and Safety Code (this section was added in Chapter 1584 of the Statutes of 1984 [Assembly Bill 3781, Sher, 1984] and did not appear in Chapter 1046 of the Statutes of 1983 [Assembly Bill 1362, Sher, 1984] so there is no former section number).

#### Factual Basis

Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] provides that new underground storage tanks used to store motor vehicle fuel may utilize alternative construction standards from those required for underground storage tanks storing other hazardous substances. As such, Section 2633(a) specifies that motor vehicle tanks may be constructed under their own regulations (Section 2633) and be subject to the monitoring requirements of Section 2634, or may use the construction standards specified for all other underground storage tanks for hazardous substances (Section 2631) and the associated monitoring standards (Section 2632).

Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] provides that new underground storage tanks used for motor vehicle fuel shall be constructed of fibreglass reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic and be subject to the monitoring specified in

Section 25292(b)(3) of the Health and Safety Code [no former section number]. To effectively store the motor vehicle fuel, the primary container must be impervious to the hazardous substance, contained within it and not be subject to physical or chemical deterioration by the hazardous substance. For commonly used motor vehicle fuels, the material specified in the statute (steel and fibreglass-reinforced plastic) have been found to be compatible with the hazardous substance and therefore are product-tight. As such, the proposed regulations do not specify that product-tight primary containers be used for motor vehicle fuels, but that only primary containers composed of two materials (i.e., fibreglass and steel) can be used.

Although steel is compatible with various petroleum and chemical products, the degree of environmental protection provided by bare steel underground storage tanks is short lived. In corrosive soil environments, corrosion protection must be used to extend the useful life of the primary container. As such, the proposed regulations specify that only primary containers not subject to corrosion (assuming appropriate installation and operation) shall be used for motor vehicle fuel, namely fibreglass-reinforced plastic, cathodically protected steel, and steel clad with glass fibre reinforced plastic.

A commenter objected to the requirement in the initial draft of the proposed regulations that underground storage tanks used for the storage of motor vehicle fuels be "product-tight." [139] The proposed regulations were modified to delete the requirement that the underground storage tank must be "product-tight."

Commenters disagreed with the specification of fibreglass-reinforced plastic, cathodically protected steel, and steel clad with glass fibre reinforced plastic as the only types of underground storage tanks which could be used for motor vehicle fuel

tanks. [12, 97] Commenters felt that this makes no allowance for the development of new materials for storing motor vehicle fuels. This comment is rejected. Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] specifically requires that only underground storage tanks of the above materials be used for motor vehicle fuels if the underground storage tanks are to be monitored using the methods described in Sections 25291(a)(7)(B) [formerly Section 25284(a)(7)] and 25292(b)(3) [no former section number] of the Health and Safety Code [no former section number]. This requirement is expressed in Section 2633(a). Secondly, the proposed regulations do not limit the use of newly developed materials as the commenters suggested. Any material which meets the compatability requirements of Section 2631(b) may be used for motor vehicle fuels provided that the remainder of the requirements of Sections 2631 and 2632 are satisfied. This is expressed in Section 2633(c).

A commenter questioned the compatability of motor vehicle fuels which may be developed in the future with the fibreglass and steel underground storage tanks. [133] The commenter recommended that the State Board develop compatability criteria between the motor vehicle fuel and the primary container material. This comment is rejected. Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] specifically exempts motor vehicle fuel tanks from the "product-tight" requirement of Section 25291(a)(1) of the Health and Safety Code [formerly Section 25284(a)(1)]. Consequently, it is beyond the State Board's authority to require that the motor vehicle fuel tanks meet any additional compatibility criteria.

A commenter expressed concern that the allowable materials for construction of motor vehicle tanks did not include "composite tanks". [26b] The commenter stated that the



absence of an Underwriters Laboratories' listing or industry standard for underground storage tanks made of "steel clad with glass fibre reinforced plastic" would make consistent implementation of the proposed regulations difficult. This comment is rejected. First, Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] specifically requires that only underground storage tanks of the above materials be used for motor vehicle fuels if the underground storage tanks are to be monitored using the methods described in Section 2634. This requirement is expressed in Section 2633(a). Secondly, the proposed regulations do not preclude the use of a composite underground storage tank for storage of motor vehicle fuels. Any underground storage tank which meets the compatibility requirements of Section 2631(b) may be used for motor vehicle fuels provided that the remainder of the requirements of Sections 2631 and 2632 are satisfied. This is expressed in Section 2633(c).

A commenter stated that the use of double-walled underground storage tanks for motor vehicle fuel tanks was discouraged by the proposed regulations since most double-walled underground storage tanks are not coated. [87] This comment is rejected. The comment represents an inaccurate interpretation of the proposed regulations. The proposed regulations do not require double-walled underground storage tanks to be coated. Double-walled underground storage tanks composed of fiberglass constructed to recognized standards obviously do not need an additional coating of fiberglass. Cathodically protected steel underground storage tanks of double-walled construction also do not require a fiberglass coating.

A commenter inferred from the proposed regulations that for double-walled underground storage tanks cathodic protection is required for only the exterior wall

of the primary container and would thereby leave the exterior of the double-walled underground storage tank unprotected. [22] This comment is rejected. The requirements for cathodic protection of double-walled, steel underground storage tanks is provided in Section 2635(b)(4) and specifically requires cathodic protection of the "outer surface of double-walled underground storage tanks constructed of steel".

Commenters felt that the proposed regulations were not clear as to whether or not double-walled underground storage tanks satisfy the requirements of a primary container with a leak interception and detection system. [53, 87g, 138, 138b] The commenters felt that a new subsection should be developed specifying that double-walled underground storage tanks satisfy the criteria of Section 2633 for a new underground storage tank for motor vehicle fuels. This comment is rejected. An additional statement is unnecessary as the proposed regulations clearly allow the use of a double-walled underground storage tank to satisfy the requirements of a leak detection and interception system for the primary container.

Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] provides that underground storage tanks constructed of glass fibre reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic after January 1, 1984 may use either the separate construction and monitoring standards which are specified in Sections 2633 and 2634, respectively, or those specified in Sections 2631 and 2632, respectively. Underground storage tanks constructed of materials not listed in Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] and used for the storage of motor vehicle fuels must conform to the construction and monitoring standards which are specified in Sections 2631 and 2632, respectively.

Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] requires that the leak interception and detection system be capable of directing a leak to a monitoring point. In order to accomplish this, the leak interception system must maintain its integrity while directing the hazardous substance to the monitoring location. This requires that the leak interception system must be compatible with the hazardous substance being stored. The compatibility requirements specified in Section 2631(c) are intended for the same purpose; therefore, compliance with these requirements will assure the integrity of the leak interception and detection system.

Physical properties of the leak interception and detection system must be assessed to determine the ability of the material to contain any unauthorized release for the period necessary for detection and as necessary in the response plan for recovery of the motor vehicle fuel. The leak interception and detection system must not deteriorate when in contact with the motor vehicle fuel for the period from when the leaked hazardous substance comes into contact with the leak interception and detection system, to detection by the monitoring system, and, if require by the response plan, to final recovery and cleanup. If the material used for the leak interception and detection system was not chosen based on its ability to contain the motor vehicle fuel from initial contact to detection with the monitoring system, the leak interception and detection system would be compromised and the unauthorized release would not be detected. In addition, if the response plan considered that the leak interception and detection system would contain all or a portion of the motor vehicle fuel during the recovery and cleanup phase, the system must be designed to contain the motor vehicle fuel for this purpose.

The use of synthetic liners as a leak interception and detection systems raises several issues with respect to the ability of the liner to provide the interception and direction function that is required. The liner must not deteriorate due to contact with the hazardous substance such that it will be capable of directing the substance to the monitoring location. If deterioration occurs, the hazardous substance could penetrate the liner and not be directed to the monitoring location. Finally, liners can be easily damaged in the case of an improper installation.

Accordingly, Subsection (e) establishes performance standards for synthetic liner materials which provide the minimum necessary to insure that the structure of the leak interception and detection system will not weaken as a result of contact with the hazardous substance. The combination of material properties specified in the proposed regulations--permeation rate, volume swell, change in elongation, brittleness, rate of transport, and rate of solubility--together provide assurance that the synthetic liner meets minimum standards for material integrity over time in the ground and in contact with the hazardous substance. A 24-hour test period separates out those liner materials that have material properties which would allow a hazardous substance to escape immediately after contact and then briefly contain the substance while further deterioration occurs. For example, some synthetic liner materials react initially to contact by a hazardous substance by swelling which results in a temporary reduction in permeation, but subsequent deterioration in the materials structural capacity and ability to contain the hazardous substance may occur. The 24-hour period is of sufficient duration to detect such a loss of structural integrity.

Installation of the synthetic liner is as important to the overall success of the secondary container as material selection. Liner installation is a relatively

complicated task and should be performed by a qualified contractor, with special attention paid to important details such as (1) compaction of the excavation base, (2) stability of slopes of the excavation, (3) removal of all debris and rubble that could puncture the lining, and (4) careful placement of the liner and bonding of seams in accordance with the manufacturer's specifications.

(OAL 159D)

A commenter indicated that Subsection 2633(f) allowed the local agency to waive certain construction standards whose waiver should only be allowed on a site specific basis by the Regional Board.[168b]. This comment is rejected. The requirement for the demonstration that the leak interception and detection system will preclude contact of any leaked hazardous substance with ground water is waived because compliance with the volumetric requirements of Subsections (e),(f), and (g) of Section 2631 and the areal extent requirements of Subsection 2635(c)(1) would preclude any unauthorized release from contacting ground water.

(OAL 34)

A commenter requested that double contained underground storage tanks or membrane liners not be required in situations where only motor vehicle fuels are stored [68b]. This comment is rejected. The regulations do not require that motor vehicle fuel tanks be limited to only "double walled" tanks or membrane liners. The proposed regulations allow the use of "single walled" tanks composed of glass-fibre reinforced plastic, cathodically protected steel, or steel clad with glass-fibre reinforced plastic tanks. As required in Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a) (7)], these tanks must be underlain by a leak interception and detection system which directs any unauthorized releases to a monitoring point.

Although the proposed regulations specify testing requirements for synthetic membrane liners [Section 2633(e)(1) through (e)(5)], for use as a leak interception and detection system, the regulations do not eliminate the use of other materials provided that the material can achieve the criteria of Section 2631(c) of the regulations.

Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] requires that the leak interception system must be designed "to protect ground water from releases". This requirement is not well defined in the statute. The State Board has defined this as meaning that the system must be capable of precluding the contact of the leaked hazardous substance with ground water. This is because, once the hazardous substance contacts ground water, the ground water is contaminated and is no longer protected.

The only requirement that the leak interception and detection system must achieve is detection of any release from the primary container. Therefore, if protection of ground water is to be provided consistent with the State Board's interpretation of the statute, the underground storage tank owner must develop a response plan which will be implemented in the event a release is detected. The response plan must be capable of achieving total cleanup of the released hazardous substance before the substance migrates to ground water.

If the leak interception and detection system is capable of providing complete containment of the released hazardous substance for the period necessary for detection and cleanup, a response plan is not necessary since there will be no release from the interception and detection system. In this situation, the local agency should waive the requirement for the development of the response plan. Sections 2631(e), (f), and (g)

specify the volumetric requirements of a secondary container which is required for non-motor vehicle fuel tanks. If these criteria are met, sufficient assurance has been provided for the waiver of the response plan.

(OAL 161D)

~~THIS DOCUMENT IS UNCLASSIFIED~~ The wording in 2633(f) of the November 9, 1984 text was changed to read "the highest anticipated ground water elevation" ~~in the February 1985~~ ~~1985 text~~ in the final draft of the proposed regulations.



(OAL 161D)

A commenter objected to the requirement that the leak interception and detection system not come into contact with the highest anticipated level of ground water and that determining this elevation would require significant hydrologic study. [113, ~~208~~ 168] The commenter contended that the distance from the bottom of the highest expected ground water has no bearing on the ability of the secondary container to preclude contact of any leaked motor vehicle fuel from the primary container with ground water. This comment is rejected. The minimum design requirements for the leak interception and detection system has no volumetric requirements. As such, a "flat, drip pan" system which directs any unauthorized release to a monitoring sump would satisfy the proposed regulations. If such a system was not located above the highest anticipated level of ground water, the ground water could submerge the leak detection and interception system and any unauthorized leak would not be detected and would directly impact the ground water. Determining the "highest anticipated level of ground water" will require hydrologic study, but such an assessment must be performed in order to determine the applicability of the "leak interception and detection system."

(OAL 50, 125A, 125B)

Commenters objected to the complexity and stringency of this section. [12, ~~84~~, 134] Commenters asserted that the enabling legislation, Section 25291(a)(7) of the Health and Safety Code [formerly 25284(a)(7)] simply calls for a system "designed to provide early leak detection and response and to protect the ground water", and not the complicated leak interception and protection system (including the access casing) and response plan presented in the proposed regulations. This comment is rejected. In

developing the proposed regulations, it was the State Board's responsibility to interpret the intent of the statute and provide standards which must be met to satisfy that intent. Measuring the ability of the unsaturated soils under the leak interception and detection system to absorb contaminants or allow vertical movement of containments is necessary in determining the capacity of the soil system to assist in preventing contaminant migration. Protection of ground waters cannot be assured unless a response plan is developed according to the proposed regulations. In the absence of a response plan, the local agency will have no method of evaluating whether or not a release can be cleaned up before it migrates to and contaminates ground water, thereby not providing the protection required by the statute.

A commenter questioned the necessity of the requirement that the local agency determine the ability of a leak interception and detection system and response plan to protect ground water. [117] The commenter felt that the leak interception and detection system should meet the volumetric requirements of Subsections 2631(d), (e), and (f). This comment is rejected. Local agencies are designated in Section 25283 of the Health and Safety Code [formerly Section 25282] as the implementing agency for the underground storage tank regulations. As such, it is their responsibility to determine compliance with the performance standards provided for the leak interception and detection system and the response plan. Second, new motor vehicle fuel tanks are specifically exempted in Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] from the volumetric requirements of Sections 25291(a)(3) through (5) of the Health and Safety Code [formerly Sections 25284(a)(3) through (5)].

Section 25291(a)(7)(E) of the Health and Safety Code [formerly Section 25284(a)(7)]

provides that pressurized piping systems connected to underground storage tanks used for the storage of motor vehicle fuels and monitored in accordance with the requirements of Section 25292(b)(3) of the Health and Safety Code [no former section number] meet the intent of Sections 25291(a)(7)(A) through (D) of the Health and Safety Code [formerly Section 25284(a)(7)].

(OAL 18A, 86C, 117)

Commenters indicated that ~~underground storage tank piping~~ pressurized piping associated with motor vehicle fuel tanks should have secondary containment (leak interception and detection system) as mandated in Section 25291 of the Health and Safety Code [formerly Sections 25284]. [4a, 4b, 14b, 111, 116c] This comment is rejected. ~~The section of the Health and Safety Code cited above is not applicable to motor vehicle fuel tanks/~~ Section 25292(a)(7)(E) of the Health and Safety Code [formerly Section 25284(a)(7)], ~~however~~ provides that pressurized piping systems that ~~are the monitoring responsibility of Section 25292(b)(3) of the Health and Safety Code and vent lines~~ are associated with motor vehicle fuel tanks ~~if they~~ need not satisfy the secondary containment (leak interception and detection system) requirement.

(OAL 18B, 26B)

A commenter requested that vent lines on gravity filled underground storage tanks be excluded from the secondary containment requirement (leak interception and detection system). [12, 14b, 22d] This comment is rejected. The exemption provided in Section 25291 of the Health and Safety Code [formerly Section 25284] for pressurized piping attached to motor vehicle fuel tanks does not apply to vent lines which, by definition, are not pressurized.

(OAL 84B)

Commenters recommended suction (vacuum) delivery or piping systems for exemption from the secondary container (leak interception and detection system) requirements for pressurized piping systems. [12, 34, 102, 113d, 113e, 119, 14b, 53] The commenters contended that the suction piping systems had been found to be just as reliable in leak detection as a pressurized piping system with an on-line detector. In addition, the commenters asserted that suction delivery systems would not operate if there was a leak in the line, thus providing a self-testing method. This comment is rejected. Section 25292(b)(3) of the Health and Safety Code [no former section number] requires the use of a continuous leak detection and alarm system located in monitoring wells adjacent to the underground storage tank (piping) and precludes the use of leak detection devices on the pressurized piping systems as a method of monitoring for unauthorized releases.

A commenter indicated that there was an error in the reference to those sections of the proposed regulations (Sections 2632 and 2633) in which pressurized piping was exempted from the leak interception and detection system requirements. [133d] The proposed regulations were changed to indicate that the pressurized piping was exempt from the leak interception and detection requirements of Section 2633 if monitored according to the appropriate section of Chapter 6.7 of Division 20 of the Health and Safety Code [Section 25292(b)(3)].

Bosch, C.T. and B.A. Valde; "Consultants' Report on the DPA/PACE Special Task Force on Underground Storage Tanks"; The Orley Group; Inglewood, California; February 1978.

Matrecon, Incorporated; Lining of Waste Impoundment and Disposal Facilities; U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response; Washington, D.C., 20460; SW-870; March 1983 (revised edition).

National Sanitation Foundation, "Standard 54 for Flexible Membrane Liners"; National Sanitation Foundation; Ann Arbor, Michigan; November 1983.

New York State Department of Environmental Conservation; Siting Manual for Storing Hazardous Substances--A Practical Guide for Local Officials; Department of Environmental Conservation; Albany, New York; October 1982.

New York State Department of Environmental Conservation; Technology for the Storage of Hazardous Liquids. A State-of-the-Art Review; Department of Environmental Conservation; Albany, New York; June 1983.

New York State Department of Environmental Conservation; Criteria and Guidance for Underground Storage of Petroleum (Draft); Department of Environmental Conservation; Albany, New York; August 1983.

New York State Department of Environmental Conservation; Recommended Practices for Underground Storage of Petroleum; Department of Environmental Conservation;

Albany, New York; May 1984.

Petroleum Association for conservation of the Canadian Environment; Underground Tank Systems, Review of the State of the Art and Guidelines; Pace Report No. 82-3; Ottawa, Ontario, Canada; February 1983.

**Section 2634. Monitoring Standards for New Motor Vehicle Fuel Underground Storage Tanks**

**Specific Purpose**

The specific purpose of Subsection (a) is to provide a summary of the monitoring standards for new underground storage tanks used for the storage of motor vehicle fuels constructed pursuant to the standards of Section 2633.

The specific purpose of Subsection (b) is to specify performance standards for the design and construction of leak interception and detection systems.

The specific purpose of Subsection (c) is to specify the performance standards for the design and construction of the access casing at each monitoring location within the leak interception and detection system.

The specific purpose of Subsection (d) is to provide the performance standards which must be satisfied to monitor the leak interception and detection system for the presence of any unauthorized release.

The specific purpose of Subsection (e) is to provide the criteria which must be considered in developing the response plan for a leak interception and detection system which is used for a primary container storing motor vehicle fuel and does not satisfy the volumetric requirements of Subsections 2631 (e) through (g).

**Factual Basis**

Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] requires specific monitoring for new underground storage tanks used for the storage of motor vehicle fuels and constructed with a leak interception and detection system. This system is intended to intercept and direct a leak from any part of the primary container into an access casing to detect any unauthorized release of the motor vehicle fuel stored in the primary container. Additional monitoring for the underground storage tank and pressurized piping consists of a continuous leak detection and alarm system which is located in monitoring wells adjacent to the underground storage tank.

This subsection details those sections of the proposed regulations where the specific performance standards for the leak interception and detection system are located. The additional monitoring requirements for the underground storage tank and pressurized piping system were included by reference to provide conformance with Chapters 1038, 1537, and 1584 of the Statutes of 1984 (Assembly Bills 3565, 3447, and 3781, respectively) which amend Chapter 6.7 (Underground Tanks) of Division 20 of the Health and Safety Code. The specific changes and additions to the proposed regulations which may be necessary as a result of the 1984 statutory amendments will be the subject of a separate rulemaking proceeding.

(OAL 125A)

Commenters objected to the complexity and stringency of this section. [12, 13, 84, 134] According to the commenters, the enabling legislation simply requires a system "designed to provide early leak detection and response and to protect the ground water", and not the complicated leak interception and detection system (including the



access casing) and response plan presented in the proposed regulations. This comment is rejected. In developing the proposed regulations, it is the State Board's responsibility to interpret the intent of the statute and provide standards which must be met to satisfy that intent. It is the State Board's belief that conformance with these requirements provides the minimum necessary to protect ground water using a leak interception and detection system. This comment was more completely responded to in Section 2633.

A commenter felt that, because motor vehicle fuel is a less hazardous substance than extremely hazardous substances, the monitoring requirements for motor vehicle tanks should be less stringent than those applied to other underground storage tanks. [12] This comment is rejected. Sections 25281(d), 25291, and 25292 of the Health and Safety Code [formerly Sections 25280(c), 25284, and 25284.1, respectively] do not require that any distinction be made between the degree of hazard of a substance and the level of containment and monitoring required. The only differentiation required is to determine the liquid and solid substances which would not adversely affect the quality of the waters of the State and do not fall into the specified lists in Sections 25281(d)(1) through (3) of the Health and Safety Code [formerly Sections 25280(c)(1) through (3)]. Contrary to the commenter's opinion, motor vehicle fuels fall into the category of a hazardous substance as classified by the National Fire Protection Association in NFPA-30, "Flammable and Combustible Liquids Code--1981".

(OAL 91B)

A commenter indicated that local agencies should have the authority to determine if a leak detection device or other proposed monitoring systems provide the necessary equivalent protection to warrant an exemption from the leak interception and

detection requirements. [117c] This comment is rejected. The monitoring requirements for pressurized piping systems are provided in Section 25292(b)(3) of the Health and Safety Code [no former section number]. This section clearly indicates that the continuous leak detection and alarm system located in wells adjacent to the underground storage tank (piping) must be approved by the local agency. Such approval by the local agency provides the opportunity to determine "equivalent protection."

(OAL 94)

*A commenter proposed adding a Subsection 2634(a)(5) which requires an annual survey of a cathodic protection system to include tank potential measurements and anode input. [119] This comment was rejected. It was not appropriate to incorporate cathodic protection requirements in Section 2634, since this topic is covered in Section 25635(a)(4) as a construction standard for all underground storage tanks, not just motor vehicle fuel tanks. In addition, based on discussions with corrosion engineering representatives, the proposed regulations provide more stringency in cathodic protection system "monitoring" by requiring that the inspection frequency be specified in the certification listing of the cathodic protection method or in accordance with a schedule prescribed by the system designer, but not less than semiannually.*

A commenter proposed a Subsection 2634(a)(5) which requires an annual survey of a cathodic protection system to include tank potential measurements and anode input. [119] This comment was rejected. It was not appropriate to incorporate cathodic protection requirements in Section 2634, since this topic is covered in Section 25635(a)(4) as a construction standard for all underground storage tanks, not just motor vehicle fuel tanks. In addition, based on discussions with corrosion engineering representatives, the proposed regulations provide more stringency in cathodic protection system "monitoring" by requiring that the inspection frequency be specified in the certification listing of the cathodic protection method or in accordance with a schedule prescribed by the system designer, but not less than semiannually.

A commenter recommended secondary containment of vapor lines. [116] No change was necessary to the proposed regulations. According to Section 25281(r) of the Health and Safety Code [formerly Section 25280(m)], vapor lines connected to the underground storage tank are considered part of the underground storage tank. Therefore, vapor lines are subject to the same requirements as the underground storage tank (i.e., be provided with a leak interception and detection system).

Subsection (b) provides the performance standards for the leak interception and detection system required under Health and Safety Code Section 25291(a)(7) [formerly Section 25284(a)(7)]. The leak interception and detection system consists of the leak interceptor system, a collection sump to which the leak interceptor directs any unauthorized release of hazardous substance for detection, and an access casing for sampling or removal of liquids for appropriate discharge and/or analytical determination. Installation of the leak interception and detection system is as critical to the success of the operation as the material selected. Accordingly, the liner material should be constructed on a firm base that will provide sufficient support for the liner and prevent settlement of the liner and primary container (underground storage tank) once the system is in operation.

Undue settlement of the leak interception and detection system could adversely effect the integrity of the liner system by stressing the liner material and creating leaks through which an unauthorized release from the primary container could pass. The primary container could also be affected as settlement of the underground storage tank could provide undue strain on both the underground storage tank and connections to the associated piping promoting additional unauthorized releases.

The leak interception and detection system must be contoured to direct any liquid to a single point or collection sump where the presence of the hazardous substance can be determined and any accumulated liquid can be removed. The access casing serves as the conduit for taking samples for subsequent laboratory determination or directly measuring for the presence of the hazardous substance and removing the liquid for appropriate disposal. Accordingly, Subsection (c) provides the performance standards for the access casing for new underground storage tanks storing motor vehicle fuel.

The access casing must be designed and constructed to fulfill its function for removing liquid in the leak interception and detection system and providing unaffected sampling for the presence of motor vehicle fuel stored in the primary container. Subsection (c)(1) requires that any liquid moving along the upper surface of the leak interception and detection system must enter the access casing. This is to ensure that the casing is perforated to the bottom such that any liquid in the collection sump will enter the accessing casing for detection and all of the accumulated liquid can be removed. For the access casing, the primary applied stress results from the backfill placed in the primary container excavation. As specified in Subsection (c)(2), appropriate engineering safety factors are required equivalent to those commonly used in structural design. This allows for uncertainties associated with the design calculations and reflects the importance of maintaining the integrity of the access casing.

In order to ensure that analyses taken from the access casing are representative of the hazardous substance in the leak interception and detection system, the access casing must not donate, capture, or mask product constituents for which the analyses

are made. Perforations in the access casing provide the conduit for discharging and or measuring liquids from the leak interception and detection system. An access casing that is constructed of materials not compatible with the motor vehicle fuels stored in the primary container may be damaged or even closed when contacted with the motor vehicle fuel which could limit the access casing's usefulness during the sampling program. Accordingly, Subsection (c)(3) requires compatibility between the material used in the access casing and the stored hazardous substance.

The access casing must be screened along the entire vertical zone of the permeable material which may be installed between the primary container and the leak interception and detection system to provide a direct conduit to the collection sump. The relatively impermeable portions of the backfill material may preclude the movement of the motor vehicle fuel leaked from the primary container to the surface of the leak interception system and to the access casing. By perforating the access casing along the vertical zone of permeable material, the "misdirected" leakage, which may never reach the surface of the leak interception system, can enter the access casing and move directly to the collection sump for detection.

The access casing is extended to the ground surface (plus an additional height as necessary) to locate the system for its intended uses. The proposed regulations originally required a locked cap to prevent surface runoff and drainage from entering the secondary container directly while preventing vandalism from intentional contamination. A commenter indicated that it was unnecessary to have a locked, waterproof cap on each access casing if the access casing was within a secure facility. [113] The proposed regulations were changed to exempt access casings placed within a secured facility from the requirement of a locked, waterproof cap.

A commenter believed that the requirements for the access casing in this section should not be more elaborate and definitive than required in Subsection 2631(i). [12] This comment is rejected. The access casings are being used for two different types of secondary containment systems. In Section 2631, the secondary container has specific volumetric requirements and, under conventional practices, would completely surround the primary container (underground storage tank). Consequently, any unauthorized release would reach the sump and access casing from deflection off the sides of the secondary container. For the leak interception and detection system (secondary container), no volumetric requirement is required; and the sides of the system do not provide any control for the unauthorized release. As such, a more complicated access casing is required to prevent the unauthorized release from going undetected (as described in the factual basis), and a more detailed explanation is necessary.

A commenter suggested that the proposed regulations specify the number of monitoring locations (access casings) required and specifically recommend that secondary containment (leak interception and detection system) include a sump with one sensor. [97] This comment is rejected. Section 25291(a) of the Health and Safety Code [formerly Section 25284(a)] requires the State Board to develop performance standards for the leak interception and detection system. Specifying the number and size of access casings was determined not to be necessary to achieve the objectives. In addition, due to the potential design variations from facility to facility, determination of the number of access casings for the leak interception and detection system should be determined by the local agency on a case-by-case basis.

The leak interception and detection system has no volumetric requirements and, as such, the method of monitoring used and its frequency must be based on the available volume in the leak interception and detection system and the capability of the proposed method to detect the presence of the hazardous substance. A monitoring method which provides the earliest indication of an unauthorized release is necessary to protect ground water, as any unauthorized release exceeding the available volume of the secondary container will overtop the leak detection system and be released into the environment with the potential to migrate to ground water.

Although continuous monitoring provides the most frequent observations for an unauthorized release, it may be not practical under all circumstances. The availability, reliability, and cost of some continuous monitoring devices may limit their usefulness for underground storage tanks, especially for the individual underground storage tank owner. As such, it would not be appropriate for the proposed regulations to only allow the use of devices and/or methods whose applicability is dubious. Consequently, daily manual monitoring was provided as an acceptable alternative to continuous monitoring. Manual monitoring includes the use of mechanical, electronic, or stick readings to detect the presence of the motor vehicle fuel either directly or indirectly. Daily or more frequent monitoring, as required by the local agency, was required to simulate the continuous response of an automatic system and, thus, satisfy the objectives of the monitoring method.

Commenters criticized the first draft of the proposed regulations [Section 2634(c)] which required that all physical monitoring methods use a continuous sensor which was capable of activating a strategically located, above-ground alarm system. [4a, 4b, 22, 49, 53, 82, 87, 97, 102, 133, 138b, 139] The commenters contended that requiring

continuous monitoring was unnecessary, not cost effective, and beyond the State Board's authority. According to the commenters, monitoring on a periodic basis, along with inventory reconciliations, was sufficient for the detection of unauthorized releases from the primary container. This comment is rejected. First, a continuous monitoring system is not unnecessary. As previously discussed, the objective of the monitoring method for the motor vehicle fuel tank is to detect an unauthorized release as soon as possible. A continuous monitoring system provides the earliest indication that an unauthorized release has occurred. Periodic monitoring extends the period required for any unauthorized release to be retained in the leak interception and detection system in order for the detection objective to be achieved. Storing a released hazardous substance in the leak interception and detection system is not the intent of either the enabling legislation or the proposed regulations. Furthermore, if detection of an authorized release is delayed due to long periods between monitoring, the leaked hazardous substance has the potential to be released from the leak interception and detection system. This is because the leak interception and detection system is not required to retain any of the leaked substances. Any release puts a burden on the owner to implement a response plan to preclude ground water contamination. The faster the leak is detected after it occurs and the response plan implemented, the more effective the entire system will be to protect ground water.

Second, the commenters' concern with the cost effectiveness of continuous monitoring is unfounded. At present, the initial cost of installing a continuous monitoring system could pose an economic hardship on the small, individual underground storage tank owner. Over time, however, the cost of daily manual monitoring exceeds the initial and annual maintenance costs of a continuous monitoring system. Using the costs provided in the updated Fiscal Impact Statement for a continuous monitoring



system and manual monitoring, it was found that the continuous monitoring system was more cost effective than manual monitoring after six years of operation. This was based on current costs for continuous monitoring systems which will certainly decrease as the marketplace becomes more competitive and makes the continuous monitoring more cost effective over a shorter operational period. For example, one proposed mechanical method of continuous monitoring has an anticipated cost of 25 percent of that for current electronic systems. This proposed system would become cost effective within 2 years of operation if compared with manual monitoring.

Third, using inventory reconciliation for detecting an unauthorized release is not an appropriate monitoring alternative for new motor vehicle fuel tanks. Sections 25291(a)(7) [formerly Sections 25284(a)(7)] and 25292(b)(3) [no former section applicable] of the Health and Safety Code make no reference to inventory reconciliation as an appropriate monitoring method. Furthermore, because the enabling legislation [Section 25291(b) of the Health and Safety Code [formerly Section 25284(b)]] requires that the monitoring method "detect the entry of the hazardous substance (motor vehicle fuel) into the secondary container (leak interception and detection system)", it was the State Board's interpretation that this only included monitoring methods that detected the presence of the unauthorized release in the leak interception and detection system (e.g., visual and physical monitoring methods).

Finally, requiring continuous monitoring is not beyond the authority designated to the State Board. Section 25299.3 of the Health and Safety Code [formerly Section 25288.2] grants the State Board the authority to specify monitoring requirements [Section 25291(b), of the Health and Safety Code [formerly Section 25284(b)]]. Requirements

for adequate monitoring necessarily include the frequency of monitoring.

The methods of monitoring approved for volatile hazardous substances in Section 2632 are referred to in this subsection as applicable to motor vehicle fuels. These methods include liquid level indicators, hazardous substance sensors, and vapor monitors. The proposed regulations require the underground storage tank owner/operator to develop a written routine monitoring procedure. Requiring the monitoring procedure benefits both the local agency and the underground storage tank owner/operator. The local agency is benefited by having the opportunity to review and make recommendations to the monitoring procedure. The underground storage tank owner/operator benefits by having a routine monitoring procedure which can be uniformly applied by the designated employee(s).

The proposed monitoring methods, in Table 3.1 of the proposed regulations applicable to motor vehicle fuel tanks, determine the presence of the hazardous substance either directly (i.e., by a sensing device) or indirectly (i.e., by increased fluid level in the collection sump) indicating the possible presence of the hazardous substance.

Accordingly, the proposed regulations require that the underground storage tank owner/operator provide the local agency with the methods and procedures that are intended to be used for determining the presence of the motor vehicle fuel when an indirect monitoring method is used. The local agency must determine the viability of the proposed method for actually determining the presence of the motor vehicle fuel and whether the "turn-around time" from preliminary detection to actual confirmation to remedial action will protect ground water.

A commenter suggested that the term "indirect method" be replaced by the term

"alternative method" in Subection 2634(d)(3). [168] This comment is rejected.

Although the different approaches to monitoring are alternative methods, the terms "direct" and "indirect" delineate whether the presence of the motor vehicle fuel is determined by the monitoring procedure directly or whether additional testing is required once an indication of a possible release has been detected.

A commenter requested that Subsection (d) be eliminated from Section 2634 because it discussed response procedures and not monitoring. [12] This comment is rejected.

The subsection does not refer to response procedures when an unauthorized release is detected, but procedures that must be followed to determine if an unauthorized release has occurred. Consequently, these procedures are part of a monitoring program and not a response program.

(OAL 112C)

A commenter felt that this subsection should provide an exemption to the proposed regulations to all motor vehicle fuel tanks having a capacity of 1,100 gallons or less. [109] In addition the commenter provided specific language for the frequency of inventory reconciliation based on the volume of the underground storage tank or the throughput volume of the tank referencing Section 2634(a)(2) of the proposed regulations. This comment is rejected. The statutes do not provide any exemption for a motor vehicle fuel tank of less than or equal to 1,100 gallons. The commenter may have been including motor vehicle fuel in the exemption for home heating fuel used exclusively for personal nonincome producing purposes in Section 25281(r)(3) of the Health and Safety Code [no former section]. The recommended frequency of inventory reconciliation as specified for Section 2634(a)(2) was also rejected and is discussed in detail on page 3.86 of the Statement of Reasons.

Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] discusses the leak interception and detection system required for primary containers used for the storage of motor vehicle fuel. The system "...must intercept and direct a leak from any part of the tank to a monitoring well to detect any release of motor vehicle fuels stored in the tank and which is designed to provide early leak detection, response, and to protect ground water from releases..." It is this underlined portion of the legislation that is the basis for requiring that a response plan be developed for the secondary container. Using the proposed monitoring method, the leak interception and detection system is required only to collect the volume necessary to indicate the presence of an unauthorized release, and the container can be easily overtopped releasing motor vehicle fuel to the subsurface environment and ground water. It must be shown that, for all reasonably anticipated modes of leakage from the underground storage tank, the leak interception and detection system and the plan to respond to the unauthorized release will protect ground water.

(OAL 96, 158B)

Commenters indicated that due to the unknown reliability of monitoring devices, these systems must be checked and calibrated at a minimum of semiannually. [120, 176]  
This comment is rejected. Specifying the frequency for checking and calibrating of automatic, continuous monitoring systems is beyond the scope of the proposed regulations. The checking and calibration schedule specified by the equipment manufacturer should be adhered to rather than an arbitrary frequency developed in the regulations which may not be applicable in all circumstances.

The adequacy of the response plan to protect ground water is determined by assessing the factors provided in Subsections (e)(1) through (e)(5). The volume of the leak

The adequacy of the response plan to protect ground water is determined by assessing the factors provided in Subsections (e)(1) through (e)(5). The volume of the leak interception and detection system in relation to the volume of the primary container [Subsection (e)(1)] must be considered to evaluate the availability of temporary storage for the unauthorized release before removal and disposal can be accomplished. If the leak interception and detection system satisfies the minimum volumetric requirements for the monitoring system, temporary storage may not be available. The access casing provides the conduit for removing the unauthorized release. The hazardous substance must be removed by pumping through the access casing, although equipment for this purpose may not always be at the site. Consequently, Subsection (e)(2) must be evaluated with respect to the results of Subsection (e)(1) to determine if there is adequate time and volume available to prevent overtopping of the secondary container before and during extraction of the motor vehicle fuel.

Subsections (e)(3) and (e)(4) must be considered if the results of Subsections (e)(1) and (e)(2) indicate that the leak interception and detection system will be overtopped. The response plan must determine whether the motor vehicle fuel will reach the ground water based on the nature of the unsaturated soils under the leak interception and detection system, their ability to absorb contaminants or allow vertical movement of contaminants, and the depth from the bottom of the leak interception and detection system to the highest anticipated level of ground water. The interaction between the unsaturated soil and the motor vehicle fuel must also be considered for the period after the unauthorized release has occurred and the hazardous substance is contained in the soils. Precipitation and subsurface infiltration can transport the motor vehicle fuel stored in the unsaturated soils to the ground water. Accordingly, the methods and timing of the response plan to cleanup the hazardous substances

contained in the unsaturated soils must provide for complete removal of any hazardous substances as specified in Subsection (c)(5).

(OAL 91A)

A commenter requested that the term "leak detection device" be defined in the regulations. [117c] This comment is rejected. In order to conform to the requirements of Chapters 1038, 1537, and 1584 of the statutes of 1984 (Assembly Bills 3565, 3447, and 3781, respectively), which amended Chapter 6.7 (Underground Storage of Hazardous Substances) of Division 20 of the Health and Safety Code, it was necessary to delete these sections of the proposed regulations pertaining to the "leak detection device to monitor for leaks in the piping" and merely refer to the statute. Accordingly, the monitoring requirements for new underground storage tanks used for the storage of motor vehicle fuels does not include a "leak detection device" and a definition for the term is not required in this section of the regulations.

(OAL 97, 158A)

A commenter requested that specific threshold limits be added for "leak Detection devices." [120, 176] This comment is rejected. In order to conform to the requirements of Chapter 1038, 1537, and 1584 of the Statutes of 1984 (Assembly Bills 3565, 3447, and 3781, respectively), which amended Chapter 6.7 (Underground Storage of Hazardous Substances) of Division 20 of the Health and Safety Code, it was necessary to delete those sections of the proposed regulations pertaining to the "leak detection device to monitor for leaks in the piping" and merely refer to the statute. Accordingly, monitoring for new underground storage tanks used for the storage of motor vehicle fuel does not include a "leak detection device" and this comment is no longer germane to this section

(OAL 24, 48, 83A, 112C, 130, 131B, 160A, 163B)

The following comments were submitted in response to the first and second drafts of the proposed regulations. As required in Sections 29291(a)(7) and 25292(b)(4) of the Health and Safety Code [formerly Sections 25284(a)(7) and 25284.1(b)(3), respectively], the proposed regulations for new motor vehicle fuel tanks included requirements for inventory reconciliation (underground storage tank gauging), periodic hydrostatic testing of the underground storage tanks, and for pressurized piping, the use of an on-line pressure loss detector and flow reduction device. In order to conform to the requirements of Chapters 1038, 1537, and 1584 of the statutes of 1984 (Assembly Bills 3565, 3447, and 3781 respectively) which amended Chapter 6.7 of the Health and Safety Code, it was necessary to delete those sections of the proposed regulations pertaining to the aforementioned topics in order to remain within the scope of the rulemaking initiated by the notice published in the California Administrative Notice Register on August 24, 1984. Accordingly, the comments summarized below are no longer germane to the proposed regulations and were rejected.

The following comments pertain to inventory reconciliation in deleted Subsections 2634(a)(2), 2634(e), and 2634(f) of the second draft of the proposed regulations.

1. A commenter believes that daily stick gauging is unacceptable as a method of record keeping due to accuracy problems [Subsection 2634(a)(2)]. [133]
2. A commenter stated that daily gauging and inventory reconciliation are not a reliable indicator of leakage in non-retail facilities [Subsection 2634(a)(2)]. [34]

(OAL 112C)

3. A commenter suggested that Subsection 2634(a)(2) be changed to require inventory reconciliation based on a schedule determined by the size and throughput of the underground storage tank. [109]
4. Commenters believed that double-walled underground storage tanks with annular space monitoring should be exempt from daily gauging and inventory reconciliation requirements [Subsection 2634(a)(2)]. [113, 147]

(OAL 163B)

5. Commenters ~~[87/ 87/ 178/ 179]~~ recommended that the criteria for implementing a response be changed to 100 gallons per day or five percent of the daily throughput, whichever is greater [Subsection 2634(d)(1) of the first draft of the proposed regulations]. [53, 87, 125, 138, 139]
6. A commenter believed that the 50 gallon per day criteria for response is too low and that daily inventory requirements should take into account daily throughput [Subsection 2634(d)(1) of the first draft of the proposed regulations]. [138]



(OAL 83A)

7. A commenter suggested that the response plan be initiated based on 100 gallon or one percent of tank volume daily discrepancy as opposed to the proposed 50-gallon change [Subsection 2634(d)(1) of the first draft of the proposed regulations]. [~~112~~, 140a]
8. A commenter recommended that the criteria for implementing a response be changed to 100 gallons per day or two percent of the daily throughput, whichever is greater [Subsection 2634(d)(1) of the first draft of the proposed regulations]. [119]
9. A commenter recommended that California adopt the approach used by the State of Florida for the inventory reconciliation [Subsection 2634(d)(1) of the first draft of the proposed regulations]. [81]
10. Commenters recommended that 100 gallons be used as the benchmark for inventory reconciliation [Subsection 2634(d)(2) of the first draft of the proposed regulations]. [81]
11. A commenter suggested redefining "daily" as "each regular work day of no less than four days in each calendar week" [Subsection 2634(d)(1) of the first draft of the proposed regulations]. [91]
12. A commenter recommended this subsection be revised to read: "Seven (7) day loss or gain of five percent of the total throughput volume of hazardous

substance over the seven days" [Subsection 2634(d)]. [138]

13. Commenters suggested that the word "delivered" be changed to "throughput" [Subsection 2634(d)(2) of the first draft of the proposed regulations]. [87, 102, 138]
14. A commenter suggested that API Guideline 1362 be used for establishing inventory reconciliation procedures [Subsection 2634(d) of the first draft of the proposed regulations]. [78]
15. A commenter believed that inventory reconciliation to the state performance requirements is probably not feasible, especially in places with extreme temperature variations [Subsection 2634(d) of the first draft of the proposed regulations]. [50]
16. A commenter suggested that a system of graduated exemptions from inventory reconciliation be provided for small businesses and private parties in semi-rural and rural areas [Subsection 2634(d) of the first draft of the proposed regulations]. [50]
17. A commenter considered Section 2634(e) to be inconsistent with the law because it requires a response to either a gain or loss of inventory, while the law requires a response whenever there is a shortage. [102j]
18. A commenter noted a typographical error in Subsection 2634(e). The first paragraph should read, "...procedures specified in Subsection

(f) of this section...." [140b]

19. A commenter noted that a close parenthesis symbol should be added after the word "days" [Subsection 2634(e)]. [87g]

(OAL 160A)

20. A commenter indicated that it would be difficult to calculate the loss or gain of inventory as defined in this subsection for an underground storage tank with high throughput [Subsection 2634(e)(2)]. [168]
21. A commenter proposed that the words "or gain" be deleted, and that double-walled underground storage tanks be exempted from the requirements of Subsection Section 2634(e). [102j]
22. A commenter believed the response periods set forth in this subsection are appropriate and achievable [Subsection 2634(e)]. [93]
23. A commenter considered the requirements of this subsection to be overly burdensome, unnecessary, and inconsistent with standard practices [Subsection 2634(e)]. [102]
24. A commenter suggested that Subsection 2634(e)(1) be amended to read "...the operator shall attempt to notify the owner, and if unsuccessful, shall notify him by certified mail within the next two business days..." or similar. [102]
25. A commenter questioned the need for notification in the event of an inventory

gain [Subsection 2634(e)(1)]. [102]

26. Commenters proposed that Subsection 2634(e)(2) be rewritten to provide a greater time allowance (e.g., four hours) for inventory record review. [102, 139]
27. Commenters requested that an operator acting in good faith to ascertain the cause of any discrepancy not be held in violation of Subsection 2634(e). [102, 130]
28. A commenter believed that the 24-hour time frame for summoning trained inspectors was unreasonable [Subsection 2634(e)(4)]. [139]
29. A commenter considered that the 48-hour time requirement for testing an underground storage tank was unreasonable [Subsection 2634(e)(7)]. [139]
30. A commenter suggested that the reference to NFPA Standard 329 not specify a particular edition as indicated in the proposed regulations [Subsection 2634(e)(6)]. [133]
31. A commenter suggested that Subsection 2634(f)(3) be revised to require only a review of inventory records back to the prior recorded gain or loss in excess of the amounts specified in the subsection. [87g]
32. A commenter requested that the reference to a gain in inventory be deleted from this subsection [Subsection 2634(f)]. [87g]

33. A commenter recommended that Subsection 2634(f)(3) be changed to read, "The operator shall have performed by a qualified person a complete review of all inventory records from the last time a compliance-related loss condition existed. This shall be completed within 24 hours of the conclusion of Subsection (f)(2)." [138b]

34. Commenters suggested that double-walled underground storage tanks be exempted from the requirement of Subsection 2634(f)(7). [87g, 138b]

35. A commenter believed double-walled underground storage tanks should be exempted from these requirements [Subsection 2634(f)]. [12]

(OAL 130)

36. A commenter indicated that this section [Section 2634(d) of the first draft of the proposed regulations] specified requirements associated with daily direct resale of motor vehicle fuel and, as such, cannot be complied with by those operations that are not involved in direct calibrated resale of motor vehicle fuel and/or not operated on a daily basis [147].

(OAL 131B)

37. A commenter requested that the requirement in Subsection 2634(e)(1) of the first draft of the proposed regulations which specifies the operator to notify the owner of the specified gain or loss within "24 hours" of the completion of the daily reconciliation be changed to "one working day." [124].

The following comments pertain to periodic testing (hydrostatic testing) of the

underground storage tank in deleted Subsection 2634(a)(3) of the second draft of the proposed regulations.

1. Commenters suggested that underground storage tank integrity methods other than hydrostatic testing be allowed without having to apply for a variance, and double-walled underground storage tanks be exempt from this requirement [Section 2634(a)(3)]. [12, 113]
2. Commenters proposed that Section 2634(a)(3) be reworded to read, "Double-walled tanks are exempt from testing unless a hazardous substance or water is detected within the interstitial space. Testing of other tanks shall be conducted at least every three years according to criteria in the National Fire Protection Association pamphlet 329." [53, 87, 138]
3. A commenter questioned the need to perform hydrostatic testing of all new fuel underground storage tanks every two years and a three year hydrostatic testing interval would be sufficient [Section 2634(a)(3)]. [139]
4. A commenter believed that the updated NFPA 329 excludes hydrostatic testing as a conclusive test method [Section 2634(a)(3)]. [78]

(OAL 48)

5. A commenter was unclear whether underground storage tanks covered under Article 4 (existing underground storage tanks) require testing as prescribed under Section 2634(a)(3). [82]

exempt from hydrostatic testing requirements [Section 2634(a)(3)].[87g, 102e, 102j, 138b]

(OAL 24)

7. A commenter believed that using a 50-percent reduction from the normal flow rate as a pipeline leak detection criteria was much too high to be consistent with the leakage rates required for underground storage tanks [Section 2634(a)(4)]. [22]

References

New York State Department of Environmental Conservation; Siting Manual for Storing Hazardous Substances--A Practical Guide for Local Officials; Department of Environmental Conservation; Albany, New York, October 1982.

New York State Department of Environmental Conservation; Technology for the Storage of Hazardous Liquids. A State-of-the-Art Review; Department of Environmental conservation; Albany, New York; June 1983.

New York State Department of Environmental Conservation; Criteria and Guidance for Underground Storage of Petroleum (Draft); Department of Environmental Conservation; Albany, New York; August 1983.

New York State Department of Environmental Conservation; Recommended Practices for Underground Storage of Petroleum; Department of Environmental Conservation; Albany, New York; May 1984.

Petroleum Association for Conservation of the Canadian Environment; Underground Tank Systems. Review of the State of the Art and Guidelines; Pace Report No. 82-3; Ottawa, Ontario, Canada; February 1983.



## **Section 2635. General Construction Standards**

### **Specific Purpose**

The specific purpose of Subsection (a) is to provide the general construction standards which apply to all new primary and secondary containers including leak interception and detection systems, regardless of the type of hazardous substance stored in the primary container.

The specific purpose of subsection (b) is to provide additional construction standards for all new primary containers and underground storage tanks, regardless of the type of hazardous substance stored in the container.

The specific purpose of Subsection (c) is to provide additional construction standards for all new secondary containers including leak interception and detection systems.

### **Factual Basis**

Section 25291 of the Health and Safety Code [formerly Section 25284] provides that new underground storage tanks be designed and constructed with primary and secondary levels of containment. For motor vehicle fuel underground storage tanks constructed pursuant to Section 2633, the leak interception and detection system is considered a secondary container and is subject to the construction standards of this section. This section provides additional construction standards, which are necessary to carry out the intent of the laws applicable to underground storage tanks.

A commenter criticized Section 2635 as being too specific and may be precluding some acceptable technology. [78] According to the commenter, the proposed regulations should allow other methods acceptable to the local agency. This comment is rejected. The proposed regulations have been developed as performance standards. The commenter did not cite examples to support the comment. When prescriptive standards are proposed, it is because techniques or methods outside of these standards will not satisfy the intent of the law. Prescriptive standards have been justified as being necessary.

Section 25291(a)(1) of the Health and Safety Code [formerly 25284(a)(1)] recognizes the importance of maintaining the material integrity of the primary container against physical and chemical deterioration by the hazardous substance which it contains. Of equal importance is the ability of the primary container to maintain its structural integrity with respect to earth loadings from installation underground and special circumstances, such as rapid surface and/or subsurface geologic change (i.e., landslide, earthquake) or settlement of backfill material. Accordingly, Subsection (b)(1) requires that all underground storage tanks be fabricated and designed to standards developed by a nationally recognized, independent testing organization or be listed by the testing organization.

Appendix 1 of the proposed regulations provides a listing of applicable design standards for both steel and fiberglass underground storage tanks. The underground storage tank owner is not limited to these standards, but may use other standards developed by a nationally recognized, independent testing organization. In addition, applying recognized construction standards provides uniformity throughout the State and lessens the need for local government, not necessarily familiar with underground

storage tank design requirements, to review each individual tank design.

Of the listed standards for steel underground storage tanks, the Underwriters Laboratories (UL) standards are the most detailed in that they specify many of the underground storage tank design details. These include steel thickness, underground storage tank head design, bracing requirements for multi-compartment underground storage tanks, the sizes of vent connections, and underground storage tank marking and testing requirements. For fibreglass reinforced plastic underground storage tanks, the UL standards provide performance standards for leakage testing, strength of pipe and lifting fittings, and testing for water load, external and internal pressure, physical properties of the materials, earth loading, and internal vacuum.

Commenters suggested that the language of this subsection be changed from "fabricated and designed by requirements" to "fabricated and designed to standards". The proposed regulations were changed accordingly. [21, 113]

(OAL 27A)

A commenter indicated that the proper designations for the Underwriters Laboratory of Canada (ULC) for reinforced plastic tanks is "ULC-S615-1977," not the "ULC -5613 1977" presented in the proposed regulations [26d]. The reference to the ULC standard was changed accordingly.

A commenter objected to the referencing of standards developed by organizations such as UL, American Society for Testing Materials (ASTM), etc., because individuals may not be able to obtain them and, therefore, cannot comment on them. [21, 113] The standards incorporated by reference in the proposed regulations, were deleted and

moved to Appendix I. Furthermore, the proposed regulations establish performance standards and provide references to acceptable construction standards for guidance. Compliance with such standards is not required if permit applicants can demonstrate the availability of acceptable alternatives. The standards cited as acceptable are readily available either from their sponsoring organizations or from public and technical libraries.

A commenter indicated that not all steel underground storage tanks manufactured to UL 58 standards are cathodically protected. [133] The proposed regulations already recognized this deficiency and required corrosion protection for all steel underground storage tanks no matter which standard was used in their construction.

Commenters objected to a minimum thickness of seven gauge as being inadequate and inconsistent with the UL 58 standard. [12, 22] The proposed regulations were modified to delete the reference to the seven gauge minimum thickness.

A commenter objected to the use of the standards referenced in Appendix I for single-walled underground storage tanks. [205] The primary objection was that the UL 58 requirement is a "manufacturing standard" and does not require the steel underground storage tank to meet any testing criteria for structural competence or corrosion resistance. The requirement for fiberglass reinforced plastic underground storage tanks under UL 1316, however, specifies "performance standards" subjecting the underground storage tank to a series of tests to determine chemical compatibility and structural integrity. This comment is rejected. It is unnecessary to develop a new set of design standards for underground storage tanks. Several nationally recognized, independent testing organizations and professional associations have

promulgated standards for the design and construction of underground storage tanks. The proposed regulations rely on the use of existing or new standards (as applicable) developed by organizations. Accordingly, any discrepancy between the UL standards for fibreglass reinforced plastic underground storage tanks and steel underground storage tanks that concerns the commenter should be resolved with UL and not the State Board.

The development of a separate "performance standard" for double-walled underground storage tanks was recommended by a commenter. [205] This comment is rejected. The proposed regulations do require separate design and fabrication standards for double-walled underground storage tanks. Subsection (b)(1) does not differentiate between single- and double-walled underground storage tanks, but requires that all underground storage tanks be fabricated and designed by recognized standards or listed by a nationally-recognized independent, testing organization.

A commenter indicated that industry standards were available for construction of cathodically protected steel underground storage tanks, but not for steel underground storage tanks coated with glass fibre reinforced plastic. [26] This comment is rejected. It is the objective of this subsection to encourage and provide for the development of fabrication and design standards for underground storage tanks by nationally recognized, independent testing organizations. Therefore, to accomplish this objective, the proposed regulations require the use of recognized standards, whether these standards exist or not. Until such time as these standards are available, the underground storage tank manufacturer may continue to fabricate underground storage tanks as was done in the past. With respect to steel underground storage tanks coated with glass fibre reinforced plastic, it is anticipated that UL will be promulgating

design standards in late 1985.

Determining the durability and chemical compatability of the material used for the underground storage tank with the hazardous substance stored is the objective of Subsection (b)(2). Although underground storage tanks constructed of any material may be subject to deterioration from exposure to the hazaradous substance, fibreglass-reinforced plastic underground storage tanks will be discussed as an example.

Numerous resins are available for use in fibreglass-reinforced plastic underground storage tanks, and each has its own performance characteristics. Some resins dissolve, soften, or become brittle in acidic or saline environments. Others will lose structural strength when exposed to certain chemicals. As such, to assure the structural integrity of the underground storage tank, recognized engineering methods of materials testing must be used to determine the ability of the underground storage tank to contain the hazardous substance. Manufacturers of underground storage tanks carrying the UL label are required by UL 1316 to perform immersion tests to prove material durability and chemical compatibility. UL in turn certifies that the underground storage tank is compatible with only certain chemicals.

The underground storage tank owner should provide the manufacturer with the exact chemical composition of the substance to be stored. The manufacturer should then bear the responsibility for selecting the proper underground storage tank and providing the owner with a written assurance of chemical compatibility. Under no circumstances should substances be switched from underground storage tank to underground storage tank unless the manufacturer provides assurances that the new substance is compatible with the underground storage tank.

A commenter suggested that a list of required tests and testing standards for durability and chemical compatibility be included in the proposed regulations. [12] A listing of some of the applicable tests and testing standards for durability and chemical compatibility have been added and is provided in Appendix I. As other testing procedures and standards are developed, they will be incorporated into Appendix I.

A definition of the word "guaranteed" was requested by one commenter. [12] This comment is rejected. The word "guaranteed" was deleted from the subsection.

(OAL 160B)

Commenters questioned the requirement that all underground storage tanks be tested for durability and chemical compatibility as conflicting with Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284 (a)(7)], which exempts motor vehicle fuel underground storage tanks from being product-tight. [139, 168] This comment is rejected. First, the exemption from the product-tight requirement for motor vehicle fuel underground storage tanks applies to only three types of underground storage tanks when used specifically for motor vehicle fuels--cathodically protected steel, fiberglass-reinforced plastic, and steel coated with fiberglass-reinforced plastic. Any underground storage tank composed of other material(s) would be subject to the product-tight requirement. The second reason is our interpretation of the Legislature's intent with respect to the "product-tight" requirement for underground storage tanks. Although the statute may exempt motor vehicle fuel underground storage tanks constructed of the above materials from being "product-tight", this was under the assumption that all existing and future motor vehicle fuels will not cause

"physical and chemical deterioration of the underground storage tank over its useful life". This may simply not be the case for new fuels with heretofore unused chemical additives. It certainly was not the Legislature's intent to allow the possibility that future motor vehicle fuel underground storage tanks could be "physically and chemically deteriorated" by the stored hazardous substance and allow unauthorized releases into the subsurface environment.

(OAL 27B)

Commenters suggested that the assurance of chemical compatibility between the underground storage tank and the hazardous substance should apply in all cases, not just for fibreglass-reinforced plastic underground storage tanks. [26g, 205] This comment is rejected. This requirement makes no distinction between fibreglass underground storage tanks or underground storage tanks constructed of other materials. All underground storage tanks must be tested by the manufacturer or an independent testing organization for durability and chemical compatibility.

Subsection (b)(3) requires that primary containers be constructed such that they are not damaged by the negligent use of dip sticks during inventory reconciliation. Under normal operating conditions, a dip stick would not result in damage when used to determine the liquid level in the underground storage tank. If the stick is dropped rather than lowered into the underground storage tank, it can result in a crack or hole in the primary container. As such, installation of a striker plate under the accessible openings where measurements are taken will eliminate this problem. The striker plate also provides valuable protection against "blast erosion" which occurs under the fill tube.



Commenters suggested that the striker plate should be constructed of chemically resistant materials, since a steel striker plate may be incompatible with some substances. [12, 21, 112, 139] The proposed regulations were changed accordingly.

(OAL 91C)

A commenter indicated that striker plates should be required for all steel underground storage tanks unless the tank design precludes accelerated corrosion and metal fatigue at the affected locations. [117c] This comment is rejected. Although investigations on the internal corrosion of steel underground storage tanks indicate that 'dip stick' measurements can accelerate internal corrosion, the available information indicated that external corrosion of the underground storage tank was the primary mode of failure. No available information in the literature indicated that repeated impact due to "dipstick measurements" could be the sole cause of the failure of a steel underground storage tank.

A commenter recommended that striker plates be installed in all underground storage tank manways and openings. [21] This comment is rejected. Not all openings or manways in the underground storage tank could possibly be used for stick gauging. Only accessible openings at the ground surface need be considered for the protection afforded by the striker plate.

(OAL 12A)

Commenters suggested that striker plates should be installed under all accessible openings of the underground storage tank, but not under monitor fittings of a double-walled underground storage tank. [14b, 22] This comment is rejected. If a monitor fitting is located under an accessible opening that could be used for insertion of a

"stick gauge" for inventory reconciliation, the underground storage tank should be protected by the striker plate.

A commenter suggested that striker plates be at least 0.25-inches thick for non-metallic underground storage tanks; or be as thick as the primary container or 0.25 inches, whichever is less, for steel underground storage tanks. [22] This comment is rejected. The 0.25-inch thickness for the striker plate for non-metallic underground storage tanks exceeded the thickness required in UL 1316, a set of construction standards recognized by the proposed regulations as adequate for fibreglass-reinforced plastic underground storage tanks.

Commenters recommended various sizes for the striker plate different than that proposed in the proposed regulations. [22, 34, 112] This comment is rejected. First, the surface area of the striker plate required in the proposed regulations is equal to that required in UL 1316, a set of construction standards recognized as adequate for fibreglass-reinforced plastic underground storage tanks. And second, the commenters provided no recommended size for the striker plate which precludes any substantive comments from staff.

Just as important as ensuring the integrity of the underground storage tank prior to installation (e.g., chemical compatibility, design, and fabrication standards) is the need to ensure the integrity of the underground storage tank once it is in the ground. Corrosion is by far the most common cause of unauthorized releases from the steel underground storage tanks. A survey by the American Petroleum Institute (API) of over 1,700 underground storage tanks and pipes which were known to have unauthorized releases, indicated that approximately 91 percent of the releases resulted

from corrosion. As such, Subsection (b)(4) of the proposed regulations requires corrosion protection for all primary containers and the exterior surface of double-wall underground storage tanks constructed of bare steel.

There are numerous factors that can influence the presence and rates of internal and external corrosion for underground storage tanks and piping systems. The more prominent of these factors include the (1) the acidity and temperature of the soil or backfill material surrounding the underground storage tank, (2) the presence of oxidizing agents in the backfill material, (3) the metabolic activity of certain microorganisms in the backfill material, (4) the soil resistivity and moisture content of the backfill material, (5) variations of soil properties within the backfill, (6) proximity to existing tanks or other underground metal structures, and (7) stray electrical currents from nearby electrical facilities. The dynamic nature of these factors indicates that a subsurface environment which would not, by existing standards, require corrosion protection for the underground storage tank when installed, could require such protection at a subsequent time. Therefore, the proposed regulations require that the corrosion history of the area be considered in determining the method of corrosion protection to be applied.

A number of methods are available to protect against corrosion. The proposed regulations require the use of a properly installed, maintained, and monitored cathodic protection system with or without coatings, or an underground storage tank clad with glass fibre-reinforced plastic. In either case, it is important that the corrosion protection is adequate for the particular situation. Therefore, the proposed regulations require that selection of the method of corrosion protection should be based on a certification listing by a nationally recognized, independent testing

organization or the judgment of a registered corrosion engineer or a National Association of Corrosion Engineers (NACE) accredited corrosion specialist taking into account the corrosion history of the area.

In situations where underground storage tanks with coatings are employed it is important that the coatings be "holiday" tested just prior to installation to ensure that there are no "holidays" (i.e., voids in the coating) which would subject the underground storage tank to accelerated corrosion. Where cathodic protection systems are used, it is important that the system be inspected under the direction of a registered corrosion engineer or NACE corrosion specialist at the frequency specified in the certification or in accordance with the schedule prescribed by the system designer, but no less than semi-annually. Thus, if the cathodic protection system fails, there will be only a limited interval before the system is back in service.

(OAL 68)

Commenters indicated that the proposed regulations are not clear as to whether Subsection 2635(b)(4) in the first draft of the proposed regulations means the local agency has the option of requiring the services of a registered corrosion engineer, or whether this is required of every underground storage tank installation ~~shall~~ and whether the local agency will receive a report from the corrosion engineer. [93, 133] Subsection 2635(b)(4) has been amended to indicate under what circumstances a corrosion engineer's or corrosion specialist's services are required. Since it is up to the owner to retain the corrosion engineer or specialist, the owner will receive any report prepared. The local agency may require a copy of this report from the owner to determine compliance with this subsection.

Commenters pointed out that corrosion protection in Subsection 2635 applies to the exterior surface of an underground storage tank that contacts the soil; and, therefore, this should be made clear when making reference to double-walled underground storage tanks. [22, 34, 36] Subsection 2635(b)(4) has been amended accordingly.

Commenters noted that Subsection 2635(b)(4) in the second draft of the proposed regulations required cathodic protection for all underground storage tanks with or without coatings and recommended that a steel underground storage tank clad with glass fibre-reinforced plastic coating should not require cathodic protection. [12b, 71b, 100d, 117, 138c] Subsection 2635(b)(4) has been amended accordingly. This recommended change is supported by Section 25291(a)(7) of the Health and Safety Code.

Commenters recommended that the proposed regulations should not allow coatings alone for corrosion protection due to the fact that both accelerated corrosion will occur at holidays and voids in an environment conducive to corrosion, and the Department of Transportation's regulations requires cathodic protection on all pipelines. [25c, 25e, 25f, 36, 91] Therefore, cathodic protection is also necessary. This comment is rejected. There is no evidence presented indicating that a steel underground storage tank clad with glass fibre-reinforced plastic that has been "holiday" tested at the installation site will not provide sufficient protection. The Department of Transportation's regulations apply only to interstate pipelines, and there is no explanation of why they require cathodic protection. Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] accommodates this method of corrosion protection.

Commenters questioned the requirement of cathodic protection for steel underground storage tanks installed in vaults. [111, 116, 139] Cathodic protection is not necessary for vaulted underground storage tanks, and Subsection 2635(b)(4) has been amended accordingly.

A commenter recommended that the proposed regulations be revised to require corrosion protection for underground storage tanks only when merited by soil resistivity. [139] This comment is rejected. As detailed in the factual basis, there are other factors which influence the corrosion of steel underground storage tanks. In addition, the soil (backfill) resistivity may decrease with time as a result of these factors.

A commenter recommended that the proposed regulations include reference to a number of recognized cathodic protection standards. [26c] The proposed regulations have been amended to include a requirement that cathodic protection systems have received "certification listing by a nationally recognized independent testing organization". Most of the standards cited by the commenter would qualify under this requirement.

A commenter recommended that the proposed regulations include a requirement that the monitoring of cathodic protection systems be performed by a California accredited corrosion engineer annually or as specified in the recommended standards and that maintenance records shall be available for inspection as needed to verify the underground storage tanks still meet industry corrosion protection standards." [26c] The proposed regulations were amended to include the intent of the comment; the inspection period shall be no longer than semi-annually, and it may be performed by someone under the direction of a corrosion engineer or an NACE corrosion specialist.

A commenter indicated that maintenance and monitoring were not described in sufficient detail in the first draft of the proposed regulations. [12] Subsection 2635(b)(4) has been amended accordingly.

A commenter recommended that the description of coatings for steel underground storage tanks include corrosion resistant materials, non-metallic, reinforced plastic coatings, composites, or equivalent systems. [133] Subsection 2635(b)(4) has been amended accordingly. Except for glass fibre-reinforced plastic coatings, however, cathodic protection is also required for all steel coated underground storage tanks.

Commenters recommended that corrosive resistant coatings, certified as corrosion resistant by a nationally recognized testing organization, should be allowed without the necessity of cathodic protection a corrosion engineer would not be necessary to design a corrosion protection system and to evaluate the corrosion history of an area. [12, 14b, 22d, 34, 87g, 100d, 102k, 205] This comment is rejected. Section 25291(a)(7) of the Health and Safety Code [formerly Section 25284(a)(7)] identifies only one type of coating that does not require cathodic protection, and this is reflected in Subsection 2635(b)(4).

A commenter recommended that the outer surface on double-walled underground storage tanks which are not clad with glass fibre-reinforced plastic, shall be protected by either a properly installed, maintained, and monitored cathodic protection system"] [54b] Subsection 2635(b)(4) has been amended accordingly.

A commenter pointed out that the first word of the last sentence, "underground", in Section 2635(b)(4) of the December 28 draft proposed regulations should be capitalized. [87g] The proposed regulations have been changed accordingly.

Subsection (b)(5) requires that all primary containers and double-walled underground storage tanks be installed according to the manufacturer's written recommendations or, if no written recommendations exist, best engineering practices. Many leaks are traced to the mishandling of underground storage tanks and equipment prior to installation or to poor installation practices. The most common installation problems include: (1) damage to the protective coatings of steel tanks, (2) structural damage to tank materials during transportation and installation, (3) the use of corrosive



backfill materials. (4) poor foundations, the lack of bedding, or improper compaction of backfill, and (5) poor anchoring of tanks subject to flotation.

Poor installation of underground storage tanks can lead to tank settling, underground storage tank flotation, or deflection of the underground storage tank walls--any of which can result in damage to the underground storage tank or underground piping and a release. Damage to coatings or the use of improper backfill material can lead to accelerated corrosion of steel underground storage tanks. Proper installation is so crucial that major underground storage tank manufacturers warrant their underground storage tanks against failure only if they are installed and used in accordance with manufacturer's instructions. For this reason, underground storage tanks should be installed in strict accord with the manufacturer's recommendations.

A commenter recommended that an installation checklist be submitted by the tank installer to assure that the installation was completed according to manufacturer's instructions. [26e] This comment was rejected by staff. Requiring an installation checklist should be the responsibility of the manufacturer in order to continue any subsequent guarantee for the useful life of the underground storage tank.

Accordingly, the responsibility for compliance with the manufacturer's instructions rests with the permittee and the local agency to ensure compliance by inspection of installation and as-built documentation.

Commenters recommended that the proposed regulations avoid any conflict with any local regulations (building codes) or the Uniform Fire Code. [22, 111] This comment was rejected by staff because Section 25288.1 of the Health and Safety Code provides that the proposed regulations preempt any local regulations of underground storage tanks, except as provided in Section 25288 of the Health and Safety Code.

Furthermore, the commenters did not provide any substantiation or examples of conflict between the proposed regulations and local building codes or the Uniform

Fire Code.

(OAL 12B)

Installation of the secondary container according to manufacturer's written recommendations was recommended by commenters. [14b, 22] This comment is rejected. Installation of the secondary liner system according to manufacturer's written recommendations is already covered in Subsections 2631(k) and 2633(e)(4).

Subsections (b)(6) and (b)(7) require testing of the underground storage tank before being put into service both at the factory and the installation site. Testing the underground storage tank according to the applicable sections of the code under which it was built [Subsection (b)(6)] provides assurance that the underground storage tank will have been tested for leakage and repaired, as necessary, before leaving the factory. This procedure may be more conclusive in detecting the presence of a leak by using pressure methods which may or may not be used following installation of the underground storage tank. Subsection (b)(7) requires testing of the underground storage tank and connected piping following installation and before being put into operation. This procedure assures that the installation of the underground storage tank and connected piping has been completed without damage to the underground storage tank and/or inadequate connections of the piping which could result in unauthorized releases.

Commenters recommended that hydrostatic or pressure testing of double-walled tanks after installation be deleted because other inspection methods for the annular space would determine the presence of an unauthorized release. [53, 87] This comment is rejected. The objective of the testing program is to determine if installation of the

underground storage tank and connected piping had resulted in damage and/or leaks to the unit. In a double-walled underground storage tank, because the primary and secondary walls are essentially constructed and installed as a single unit, damage to and potential leakage from the secondary wall could result during the installation. As such, total reliance on the secondary container system for determining if a leak is present may not be sufficient. In fact, because the integrity of the secondary wall can be determined by pressure testing, this method should be applied as part of the initial testing following installation.

Testing according to the requirements of Section 2-7 of National Fire Protection Association (NFPA) 30 - Flammable and Combustible Liquids Code (1981) was recommended by commenters. [22, 78] This comment is rejected. The specific requirements of Section 2-7 of NFPA 30 are included in those required in Subsections (b)(6) and (b)(7).

A commenter indicated that the requirements for NFPA 329 - Underground Leakage of Flammable and Combustible Liquids (1983) for testing an underground storage tank for leakage does not include the terms "hydrostatic" and "pressure" as part of proper test procedures. [78] This comment is rejected. The requirements of NFPA 329 for testing of an underground storage tank specify the "precision test" as the appropriate method. The "precision test" is simply any method of testing that takes into consideration "the temperature coefficient of expansion of the product being tested as related to any temperature change during the test, and is capable of detecting a loss of 0.05 gallons per hour" as specified in Section 2643(b) and NFPA 329. The hydrostatic (using liquid) and pressure (using gas) tests are specific testing methods which must satisfy the precision testing requirements to be approved for use.

(OAL 85A)

A commenter recommended that hydrostatic or pressure testing of underground storage tanks following installation not be required for tanks constructed and monitored according to the standards of Sections 2631 and 2632. [114] This comment is rejected. The objective of the testing program is to determine if installation of the underground storage tank and connected piping had resulted in damage and/or leaks to the primary container. Using the secondary container monitoring system indirectly determines the integrity of the primary container and, accordingly, does not provide total confidence in the "post installation" tightness of the underground storage tank and piping. As such, recognized guidelines for testing of underground storage tanks following installation were provided in the proposed regulations and are similar to those adopted by the National Fire Protection Association and contained in the current edition of the Uniform Fire Code.

A commenter pointed out that precision hydrostatic tests must be performed on full underground storage tanks and cannot be performed on exposed underground storage tanks or piping before backfill. [117] According to the commenter, the integrity of new installations can be verified only with a low pressure air test of exposed underground storage tanks and soap testing of exterior joints. This comment is rejected. The proposed regulations do not propose that the underground storage tank be tested any differently than what is required under existing codes, specifically Section 2-7.3 of NFPA 30-1981. As such, the testing requirements have been used in field applications with little or no problem. In addition, if applying the hydrostatic test could result in damage to the underground storage tank, the underground storage tank owner/operator does have the option to use the low pressure air test as provided

in Subsection (b)(7).

A commenter questioned whether the intent is to pressure test the underground storage tank or the piping, and, if so, at what pressure and for how long. [12] This comment is rejected. The proposed regulations in Subsection (b)(7) specify that underground storage tanks and piping may be tested by pressure methods and specifies the pressure levels.

(OAL 39B)

By referring to the NFPA Precision Test rather than "hydrostatic testing," a commenter felt that the proposed regulations would be less confusing and less limiting. [78c, 147] This comment is rejected. The term "hydrostatic testing" was used to define underground storage tank testing in Chapter 1046 of the Statutes of 1984 (Assembly Bill 1362; Sher 1983) which were the subject of this rulemaking process. The criteria for hydrostatic testing provided in the proposed regulations is the same as that presented in the National Fire Protection Association (NFPA) Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids," in their definition of precision testing and referenced by the commenters. Any subsequent changes to the proposed regulations which may be necessary as a result of Chapters 1038, 1537, and 1584 of the Statutes of 1984 (Assembly Bills 3565, 3446, 3781; Sher, 1984) including reference to the "precision test" and will be the subject of a separate rulemaking proceeding.

Sections 25291(c) of the Health and Safety Code [formerly Section 25284 (c)] specifies that, when required by a local agency, every new underground storage tank be provided with a means of overfill protection, including an overfill prevention

device or an attention-getting, high-level alarm, or both. Subsection (b)(8) provides these components which must be included to comply with the statutory requirements.

(OAL 91D)

A commenter suggested that owners of underground storage tanks be required to submit a certification of tightness to the local agency to ensure compliance with the installation testing requirements. [117c] This comment is rejected. The regulations provide that the underground storage tank be tested for tightness prior to being covered, enclosed, or placed in use. Passage of the testing procedure is mandatory for a new underground storage tank to receive a permit from the local agency. Accordingly, the local agency must require that the tank owner submit a "certification of tightness" in order to permit the underground storage tank and it is not necessary for the regulations to specify this requirement.

Spills can occur at underground storage facilities because of underground storage tank overfilling and drainage from product transfer hoses. For example, hazardous substances are often unloaded from vehicles into underground storage tanks without means of automatic overfill protection. Without such protection, underground storage tanks can be overfilled with hazardous substances which will rise through the vent lines until it attains a level equal to the product level inside the truck being unloaded. With hazardous substances in the standpipe, the underground storage tank is subject to liquid pressure which may exceed its design capacity and result in cracks and an authorized release.

Quick disconnection couplings on the ends of discharge hoses are normally used rather than dry-break couplings which are heavier and more difficult to maneuver. With

quick disconnect couplings, product remaining in the discharge hose is frequently spilled near the underground storage tank area. Besides the obvious dangers which can result from sloppy practices, the daily small spills seeping into the ground near the underground storage tank fill area can accumulate into sizeable and hazardous volumes over a period.

Overfill protection is accomplished by measuring and controlling the liquid level in the underground storage tank. An ideal underground storage tank overfill prevention system would include (1) a level sensing device that monitors and indicates the liquid level in the underground storage tank, (2) an alarm to alert the operator of an impending overfill condition, and (3) an automatic shut-off device that stops delivery when the underground storage tank is full.

The level sensing device provides the operator with continuous information on the liquid level of the hazardous substance in the underground storage tank, and, as necessary, any impending overflow condition. The audible/visual alarm system alerts the operator of an impending overflow condition and thus provides a backup to visual monitoring of the level sensing device. The automatic shut-off controls interface with the level sensing devices to (1) prevent underground storage tank overfilling by shutting off the underground storage tank loading pump at a preset high level, (2) prevent damage to the tank unloading pump by shutting it off at a low level, and (3) operate various flow valves to control product flow.

A commenter believed that this subsection added "weighty, expensive, and unnecessary procedures" which exceed the Sher Bill's direction for overflow protection. [84] This comment is rejected. In developing the proposed regulations, it is the State Board's



responsibility to interpret the intent of the statute and provide standards which must be met to satisfy the intent. It is the Board's interpretation that conformance with these requirements provides the minimum necessary to protect ground water using an overflow protection system which is clearly within the intent of Section 25291(c) of the Health and Safety Code [formerly Section 25284(c)].

Commenters proposed that the language in this subsection be changed to read, "...all underground storage tanks may be equipped...." [14b, 102] This comment is rejected. The language used in the proposed regulations is, in part, a verbatim transcription of the statutory language ["when required by the local agency,..."] and clearly specifies that the overfill protection methods may be required at the local agency's discretion.

Fitting all underground storage tanks with spill protection as well as overfill protection was requested by a commenter. [116] The requirement for spill protection using "a spill catchment basin surrounding the fill pipe and preventing the inflow of hazardous substance into the environment" was included in the proposed regulations.

(OAL 12D, 132)

Using a ball float valve in the vent and vapor return lines of underground storage tanks not filled under pressure was suggested by a commenter as another overflow protection system option. [14b, 152] This comment is rejected. The overfill protection method detailed in the complete comment is already allowed in Subsection 2535(b)(8)(C) of the proposed regulations and ~~/is not/~~ an additional option for this method is not necessary.

(OAL 113A, 153C)

A commenter questioned the need for a spill catchment basin or an alarm, if the underground storage tank is filled through a "tight elbow system." [100d, 100e] This comment is rejected. The proposed regulations do not require the underground storage tank to have an audible/visual alarm system if the "tight elbow system" automatically stops the flow of product when the tank is full as specified in Subsection 2635(b)(8)(c). The spill catchment basin is unnecessary if the "tight elbow system" contains quick disconnect couplings and, is capable of preventing above ground spillage/overflow of any product remaining in the discharge hose. Such spillage near the underground storage tank would eventually seep into the subsurface surrounding the tank, unless intercepted by a spill catchment basin.

A commenter indicated that continuous monitoring of the liquid level in the underground storage tank should not be a mandatory component of an overflow prevention system. [139] This comment is rejected. The proposed regulations do not specify that continuous monitoring of the liquid level is a mandatory component of an overflow prevention system. This method of overflow protection is a part of two of the three options for overfill protection provided to the local agency for use at their discretion.

A commenter indicated that the automatic shut-off device should not be required to "stop" flow completely so that the fill base can be drained into the underground storage tank. [152] According to the commenter, such systems are presently being used. This comment is rejected. The proposed regulations do not preclude the use of the system described by the commenter provided that the local agency imposed the requirements of Subsections 2635(b)(8)(A) and (b)(8)(B) only.

(OAL 7)

Commenters suggested the wording changes, "all underground storage tanks shall be equipped with an overflow protection system which includes but is not restricted to the following elements." [4a, 4b] This comment is rejected. The language used in the proposed regulations is, in part, a verbatim transcription of the statutory language ["when required by the local agency..."] and clearly specifies that the overfill protection methods may be required by the local agency and are not mandatory.

A commenter suggested that the local agency should be given the discretion to tailor the overfill prevention system on a case-by-case basis. [87g] This comment is rejected. First, in Subsection 25292(c) of the Health and Safety Code [formerly Subsection 25284(c)], except for spill protection, the options available to the underground tank owner for overfill protection are specified and merely expanded on in the proposed regulations. Second, contrary to the commenter's statement, the local agency is given the discretion to tailor the overfill prevention system within the bounds stipulated by the enabling legislation.

Subsection 25291(c) of the Health and Safety Code [formerly Subsection 25284(c)] provides that primary tank filling operations of underground storage tanks containing motor vehicle fuels which are visually monitored and controlled by the facility owner have satisfied the requirements of Subsection 2635(b)(8) of the proposed regulations. This requirement is specified in Subsection 2635(b)(9) of the proposed regulations.

Visual monitoring of the underground storage tank requires that the operator be able to visually monitor the liquid level in the underground storage tank. This can be done by direct observation of the level or by means of a liquid-level monitoring

system visible to the facility operator during the filling operation. The facility operator must be able to control the filling operation while observing the liquid level in order to provide a means to prevent overfilling of the underground storage tank.

Two additional methods are provided in Subsections (b)(9)(B) and (b)(9)(C) to satisfy the overflow protection requirement. Underground storage tanks used for the storage of motor vehicle fuels are normally filled by releasing a compartment(s) of known volume into the underground storage tank from a distribution truck. Visual monitoring is not required if the available volume of the underground storage tank is determined prior to filling (stick gauging in a calibrated underground storage tank is sufficient) and is at least 103 percent of the volume of the entire distribution truck compartment or an additional 200 gallons. The additional volumes of the entire distribution truck compartment were added to account for stick gauging errors in determining the available volume in the underground storage tank and volumetric expansion of the motor vehicle fuel in the distribution truck compartment. The second method allows delivery when the hazardous substance can be metered into the underground storage tank and the available volume in the underground storage tank is determined (stick gauging in a calibrated underground storage tank is sufficient) prior to filling.

Commenters [87g, 138b] noted that references to "(2) or (3)" in Subsection 2635(b)(9) should be changed to "(B) or (C)". [87g, 138b] The proposed regulations were changed accordingly.

(OAL 113B)

A commenter questioned the requirement in Subsection 2635(b)(9)(A) that during the

filling operation the fluid level is visually monitored and controlled by the facility operator. [100d] This comment is rejected. This subsection is based on the requirements of Section 25291(c) of the Health and Safety Code [formerly Section 25184 (c)] which specifies that primary tank filling operations of underground storage tanks containing motor vehicle fuels may be visually monitored and controlled by the facility operator to satisfy the statutory requirements for overfill protection. Subsections 2635 (b)(9)(B) and (b)(9)(c) provide other filling operation alternatives which can be determined by the "driver" as requested by the commenter.

(OAL 108, 154A)

The following portion of the Statement of Reasons was omitted in the submittal to the Office of Administrative Law (OAL). The comments referred to in OAL comments sheets 108 and 154A are provided in the additional material presented below:

(OAL 108, 154A)

The initial draft of the regulations required that the available capacity of the underground storage tank be at least 110 percent of the volume of the entire tank compartment to be delivered. This volumetric requirement was questioned by numerous commenters [53, 87, 87g, 125, 138, 139]. Based on the comments received and a reevaluation of the required tank volume, the available capacity of the underground storage tank required was lowered to 103 percent in Section 2635(b)(9)(B). The following comments concern this aspect of the regulations.

A commenter believed that the 110 percent available capacity requirement provides a reasonable safety factor. [93] This comment was rejected by staff because as discussed above, further evaluation of available data indicated that the 110 percent requirement was excessive and, as such, was subsequently lowered to 103 percent of the volume of the entire tank compartment to be delivered.

Several commenters suggested that the requirement of this subsection be changed to allow the minimum available capacity of the tank to be filled to be (1) determined immediately prior to filling to be 103 percent of the volume of the product to be delivered as determined by tank gauging, or (2) 200 gallons plus the volume of the

product to be delivered, whichever is less. [53, 87, 87g, 138]. This comment was accepted by the State Board and the regulations were changed accordingly.

Commenters believe that the available capacity requirement for Subsection 2635(b)(9)(B) should be reduced to 100 percent. [102, 113] This comment is rejected. As detailed in the factual basis, the objective of including "a percentage of the volume of the entire distribution truck compartment" was to make an allowance for errors associated with "stick gauging" in determining the available volume of the underground storage tank and expansion of the motor fuel in the distribution truck. Using a value of 100 percent makes no sense because it does not provide any tolerance for error.

Commenters suggested that Section 2635(B)(9) be deleted because it provided no effective overfill protection and is redundant to Section 2635(b)(8). [4a, 4b] This comment is rejected. Section 25292(c) of the Health and Safety Code [formerly 25284(c)] specifically requires that the overfill protection methods presented in this subsection be provided as an alternative to those in Subsection 2635(b)(8) for motor vehicle fuel tanks. In addition, contrary to the commenter's opinion this subsection is not duplicative of Subsection 2635(b)(8) since it provides alternatives which are dependent more on manual operation rather than automated systems.

A commenter recommended "spill lock" as a means to comply with overfill protection regulations. [2] This comment is rejected. It is not necessary to require a specific type of equipment to satisfy the performance standard in this situation.

A commenter recommended that the first paragraph of this subsection should be amended to allow for local agency discretion to require overfill protection. [87g] This comment is rejected. The language used in the Section 2635(b)(8) and referred to in Section 2635(b)(9) is in part a verbatim transcription of the statutory language ["when required by the local agency"] and clearly specifies that the overfill protection methods may be required at the local agency's discretion.

A commenter requested that the local agency be able to require simple overfill protection devices. [93] This comment is rejected. The performance standards for overfill protection presented in Section 2635(b)(8) and (b)(9) do not preclude the use of simple overfill protection devices. Any equipment and methods which achieve the performance standards and are approved by the local agency may be used.

Commenters suggested that Subsection 2635(b)(9)(A) be amended to allow the filling operation to be controlled by the delivery vehicle operator as well as the facility operator. [53, 87g, 102, 102j, 112, 138, 138b] This comment is rejected. First, Section 25297(c) of the Health and Safety Code [formerly 25284(c)] specifically requires that during the filling operation "(the filling operation should) be visually monitored and controlled by a facility operator". It is our interpretation that visual monitoring of the filling operation means to observe the fluid level in the underground storage tank. And second, the underground storage tank can be filled using either Subsection (b)(9)(B) or (b)(9)(C) which does not require that the facility operator be involved in the filling operation.

(OAL 43)



A commenter indicated that the volumetric requirements for the dispensing vehicle used in the filling of motor vehicle fuel tanks was confusing. [80c]. This comment was rejected. The commenter provided two interpretations of the requirements of Section 2635(b)(9)(B). The first interpretation is correct and reflects the Board's intent in the regulation. The second interpretation is incorrect and is characterized by the commenter as "not realistic". Accordingly, no change is necessary to the regulatory language since a reasonable and realistic interpretation of the regulatory language would reflect the Board's intent.

A commenter suggested that the requirement of Subsection 2635(b)(9)(B) be changed to allow for variable reserve capacities based on the size of the underground storage tank. [138] This comment is rejected. Basing the additional tank volume required on incremental tank capacities (i.e., less than or greater than 4,000 gallons) puts an unreasonable burden on the small underground storage tank owner. For example, for tank sizes ranging from 4,000 gallons to 12,000 gallons, the additional 200 gallons required ~~for~~ for underground storage tanks using the commenter's proposal provides a loss of available tank volume of between 5.0 and 1.7 percent. Tanks ranging between 1,000 gallons and 4,000 gallons using the commenter's 100-gallon requirement would lose between 2.5 and 10.0 percent of the available tank volume. The additional three percent of the available volume of the underground storage tank or 200 gallons, whichever is less, provides uniformity among tanks of all sizes and sufficient overfill protection.

A commenter objected to the requirement that a fill pipe catchment basin is necessary. [100e, 102] This comment is rejected. As provided in the factual basis, the

spill catchment basin serves a specific purpose, which is to prevent the daily small spills which may occur near the fill area from reaching the subsurface. These spills can accumulate over a period of time and become a sizeable and hazardous volume of subsurface contamination.

Section 2635(c)(1) in the first draft of the proposed regulations concerned the location of the underground storage tank relative to existing or designed structures. A commenter considered these requirements to be too restrictive and that they conflict with most nationally recognized codes. [133] Based on further review of existing, nationally recognized codes, it was determined that a conflict between the requirements of the codes and the proposed regulations. This section was deleted from the proposed regulations.

Commenters addressed technical issues raised by this subsection. [53, 84, 87, 138] These comments are rejected. The relevant provisions have been deleted from the proposed regulations and the comments not addressed in detail.

Subsection 2635(c)(1) delineates the minimum surface area for the horizontal plane defining the extent of the secondary container. With the backfill placed in between the primary and secondary container, an unauthorized release from the primary container will disperse away from the point of leakage forming a plume. The bottom of the secondary container must extend a sufficient distance beyond the vertical plane defining the tank edge to allow the unauthorized release to contact the secondary container and be directed to the monitoring system. This is especially critical for the leak interception and detection system for motor vehicle fuel tanks which could be constructed with sides of minimal height.

Secondary containers for non-motor fuel tanks have volumetric requirements and sides for containment of an unauthorized release. If the secondary container completely encloses the primary container (the top of the secondary container is at least as high as the tank), this subsection is automatically satisfied. In the event that the bottom of the primary container is significantly above the top of the secondary container, then this secondary container must be laterally extensive, such that all portions of the unauthorized release will be directed into the secondary container. This can be exemplified by a situation where the primary container is a 5x10-foot underground storage tank and the secondary container is a 5x10-foot basin of sufficient volume. Assuming backfill is placed between the underground storage tank and the basin, a leak from the primary container will move vertically in a plume or cone-shaped dispersion. If the leak is from the corner of the primary tank, at least one-half of the cone will be outside of the vertical plane of the primary tank. If the top of the secondary container is 5 feet below the bottom of the primary container and the slope of the cone is 1:1, the plume will have spread 5 feet beyond the vertical plane

of the primary container before it reaches the secondary container. Unless the secondary container design takes this lateral spread into account, it will not be effective in containing the entire unauthorized release as required.

(OAL 85B)

A commenter recommended that evaluation of the maximum lateral spread of a point leak from the primary container not be required for underground storage tanks whose secondary container meets the volumetric standards of Section 2631. [114] This comment is rejected. Satisfaction of the volumetric requirements of Sections 2631 (e) and (f) for the secondary container does not necessarily mean that the maximum lateral spread of a point leak would remain within the secondary container. Although impractical, the secondary container could satisfy the volumetric requirements, but be positioned sufficiently below the underground storage tank such that an unauthorized release could move laterally outside the confines of the secondary container. Normal installation practices using liner systems (i.e. synthetic membrane, concrete) for the secondary container extend to the ground surface, and would automatically satisfy the requirement of Section 2635 (c)(1) as assumed by the commenter.

(OAL 85C)

A commenter requested that if a determination is required of the maximum lateral extent of a point leak, uniform assumptions should be provided in the regulations regarding the site and location of the point leak in the underground storage tank. [114]. This comment is rejected. Due to the myriad of possibilities that are available for the location and volume of the point leak, the regulations do not specify these

parameters. The parameters should be evaluated by the local agency on a case by case basis to determine the "operational" combination that would provide the worst probable scenario for design purposes.

(OAL 102)

A commenter considered the language used in this section as too complicated. [127] According to the commenter, a Ph.D. in engineering is necessary to read portions of the regulations, and this should not be necessary for a set of regulations that apply to every "mom and pop" gasoline station in the State. This comment is rejected. The proposed regulations do not require a Ph.D. in engineering to be understood. None of the staff have earned a Ph.D. in engineering, and they developed the regulations. Furthermore, it is not anticipated that every "mom and pop" gas station owner is ~~not~~ going to design and construct their own underground storage tank system. They will employ professionals in a variety of fields to interpret the proposed regulations and develop an appropriate system design.

Subsection 2635(c)(2) requires that the secondary container preclude the inflow of the highest ground water anticipated during the life of the underground storage tank. This subsection results from the volumetric requirements for the secondary container mandated in 25291(a)(2) of the Health and Safety Code [formerly Section 25284(a)(2)]. Inflow of ground water into the secondary container would diminish the volume available to contain any unauthorized release and in the event of an unauthorized release could result in direct contact with the ground water.

A commenter considered this requirement to be essential to the effective operation of

any secondary containment system. [9] This comment did not require any modifications in the proposed regulations since it supports the proposed regulations.

The purpose of the secondary container (leak interception and detection system) is to control any leakage from the primary container and direct the leakage to a monitoring system. As such, it is important that the backfill material between the primary and secondary container be designed and constructed to promote gravity drainage of a leak of hazardous substance to the monitoring system. Section 2635(c)(4) requires that the backfill material satisfy these requirements.

The backfill material placed between the primary and secondary container must not preclude the vertical movement of any leakage from the primary container to assure that any unauthorized release reaches the secondary container and, subsequently, the monitoring system. This is especially critical for leak interception and detection systems where the sides may be of minimal height. If an unauthorized release occurs and the backfill directs the unauthorized release away from the leak interception and detection system, the leak may never be detected.

Sections 25291(d) of the Health and Safety Code [formerly Section 25284(d)] and Section 2635(c)(5) require that different substances which in combination may cause a fire or explosion, or the production of flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container be separated in both the primary and secondary container. It is not anticipated that these substances would be mixed intentionally in the primary container since mixture of the liquids would result in the aforementioned problems. Undivided secondary containers surrounding underground

storage tanks containing these substances result in the same problem. A simultaneous unauthorized release from the primary containers would result in mixing of the incompatible materials and the associated problems.

A commenter indicated that Subsection 2635(c)(5) duplicated Section 25284(d) of the Health and Safety Code. [139] This comment is rejected. As stated in the preamble to the proposed regulations, there are several reasons to justify the duplication. First, the statutory language is detailed in and of itself. Second, repetition of the statutory language is necessary to ensure that individuals in local government and private industry are able to comply with the requirements with a minimal amount of reference to materials which have been incorporated by reference. Since the statutory language is detailed, any attempt to rephrase it could violate the consistency standard of review. And finally, inclusion of this requirement ensures that the list of general construction standards presented in the proposed regulations will be complete.

Section 25291(c) of the Health and Safety Code [formerly Section 252284(c)] requires that excess liquids be removed from the secondary container in a manner approved by the local agency. The secondary container can be subject to inflow of additional liquid beyond that which may be required for normal operation due to precipitation and/or subsurface infiltration. An unauthorized release which occurs during the same period could contaminate the liquid in the secondary container. The excess liquid in the secondary container (leak interception and detection system) must be removed for continued and efficient operation of the system. The liquid must be analyzed initially to determine the presence of any of the hazardous substance(s) stored in the primary container and monthly thereafter for any continuous discharge.

A commenter indicated that Section 2635(c)(6) is totally outside the scope of the statute. [84] This comment is rejected. The proposed regulations result from Chapter 1046 of the Statutes of 1983 (Assembly Bill 1362; Sher, 1984), not Chapter 1038 of the Statutes of 1984 (Assembly Bill 3565; Sher, 1984). As provided in the factual basis, Section 25284(c) of the Health and Safety Code [formerly Section 25284(c)] provides the authority for this section. Any changes to the proposed regulations which may be necessary as a result of the 1984 statutory amendments will be the subject of a separate rulemaking proceeding.

A commenter recommended that the liquids which may or may not require an analysis should be identified. [110] This comment is rejected. It would be impossible for the State Board to identify those materials which may or may not need analysis considering the thousands of potential hazardous substances and the numerous options available. Such a decision is best left to the local agency to determine on a case-by-case basis.

A commenter requested that the term "immediately" should be clarified in reference to sampling and analysis of a liquid that leaks from a primary container. [139] This comment is rejected. The term "immediately" is used with its well-recognized common meaning, "as soon as reasonably possible, without delay". Because of the thousands of hazardous substances and numerous methods for determining their presence, it was considered most efficient to provide the local agency with the ability to make this determination as to the acceptable delay on a case-by-case basis.



Except for double-walled underground storage tanks, Section 2535(c)(7) requires that all underground storage tanks have a water tight cover which extends at least one foot beyond each boundary of the original excavation. The purpose of this boundary is to minimize the amount of infiltration that enters the secondary container (leak interception and detection system), providing a factor of safety against tank flotation, and safeguards against vehicle and equipment traffic which may pass over the installation.

A commenter indicated that a roof would protect an underground storage tank from rainfall as well as a cover made of concrete, asphalt, or equivalent material. [139] This comment is rejected. First, the roof may protect the excavation and underground storage tank from direct precipitation, but only a sloped pavement over the excavation could direct surface runoff with potential subsurface infiltration from other locations away from the area. Second, as stated above, minimizing subsurface infiltration is not the only purpose for the cover and these additional purposes would not be satisfied by a roof.

A commenter considered this subsection to be inconsistent with the section that specifies secondary containment volumes for tanks exposed to rainfall. [139] This comment is rejected. As clearly stated in the last line of Subsection 2635(c)(7), the requirements of this subsection do not apply to open vaults.

The development of as-built drawings for a constructed facility is common practice. These drawings provide information as to the relocation of any portions of the facility (i.e., pipelines, underground storage tanks) which may have been changed

during actual construction from that in the plans submitted to the local agency for original approval. Providing the copies of the as-built drawings, photographs, and plans to the local agency, as required in Subsection 2635(c)(8), enables them to work in any emergency situation with knowledge of the exact location of any underground facilities.

A commenter indicated that Section 2635(c)(8) is totally outside the scope of the statute. [84] This comment is rejected. The proposed regulations implement a regulatory program authorized by Chapter 6.7 (Underground Tanks) of Division 20 of the Health and Safety Code. The State Board's authority to adopt regulations is specified in Section 25299.3 of the Health and Safety Code [formerly Section 25288.2] and extends to regulations necessary to implement, interpret, and make specific the Legislative intent, as well as specific statutory requirements.

The requirement to submit all drawings, photographs, and plans to the local agency was considered to be an excessive administrative burden by a number of commenters. [113, 113d, 139] The commenters suggested that copies of the as-built drawings should be kept at the underground storage tank facility and available for local agency inspection. This comment is rejected. It is common practice for regulatory agencies dealing with the permitting and inspection of facilities used for storage of hazardous substances (materials) to maintain a complete file on all activities associated with the facility. This file provides the supporting documentation for the storage permit and any subsequent actions which may be required. For example, the Regional Water Quality Control Boards maintain extensive files on all facilities issued waste discharge permits including as-built drawings for the facilities and any additional photos and

plans developed during their construction.

A commenter believed that there is no authority for the requirement of Section 2635(c)(8) since local requirements meet this purpose. [110] This comment is rejected. A local agency which uses these regulations may not, under normal construction permit procedures, require as-built drawings for underground storage tanks. Therefore, these regulations would preempt the local regulations and require submittal of the as-built plans.

A commenter contended that submittal of an engineered proposal for local approval before construction is more important than as-built plan review. [119] This comment is rejected. Although staff agrees with the importance of reviewing the engineered proposal for permit approval, the as-built plans must also be reviewed to assure that any changes made to the original design do not invalidate the underground storage permit.

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# 4. Article 4, Existing Underground Storage Tanks Monitoring Criteria



**Article 4. Existing Underground Storage  
Tank Monitoring Criteria**

Pursuant to Health and Safety Code Section 25292 (formerly Section 25284.1), all owners of underground storage tanks that are used for the storage of hazardous substances and that were installed on or before January 1, 1984 shall provide means of monitoring the underground storage tanks for unauthorized releases.

**Section 2640. Applicability**

**Specific Purpose**

The specific purpose of Subsection (a) is to specify that owners of existing underground storage tanks subject to Subchapter 16 must implement visual monitoring, if feasible, or a monitoring alternative as a condition for continued operation of the underground storage tank.

The specific purpose of Subsection (b) is to set forth the general objectives to be achieved by monitoring systems for existing underground storage tanks.

The specific purpose of Subsection (c) is to specify the general objectives of visual monitoring and to elaborate on the conditions under which visual monitoring is applicable.

The specific purpose of Subsection (d) is to specify that when visual monitoring is impossible or infeasible, a monitoring alternative must be implemented.

The specific purpose of Subsection (e) is to indicate that the monitoring alternatives are minimums as they relate to methods and frequencies and that local agencies have the authority to require additional methods or more frequent monitoring in order to achieve the objectives of this article.

The specific purpose of Subsection (f) is to give the local agencies the authority to reduce the frequency of monitoring from that specified due to environmental conditions, mainly weather.

#### Factual Basis

Section 25292(a) of the Health and Safety Code [formerly Section 25284.1(a)] requires that every underground storage tank used for the storage of hazardous substances that was installed on or before January 1, 1984 shall be equipped with a monitoring system capable of detecting unauthorized releases. Furthermore, in the statute, the Legislature declared that "...it is in the public interest to establish a continuing program for the purpose of preventing contamination from hazardous substances stored underground." Subsection (a) provides that underground storage tanks cannot be operated if they cannot be adequately monitored. This is accomplished by preventing local agencies from issuing a permit for an underground storage tank that cannot be monitored and, furthermore, providing that the local agency shall require proper closure of the underground storage tank.

The approach to monitoring adopted in Subchapter 16 is consistent with the approach used in formulating the regulations governing the disposal of waste to land

(Subchapter 15 of Chapter 3 of Title 23 of the California Administrative Code). This approach is based on the premise that, because ground water pollution is virtually impossible to cleanup completely and cleanup is exorbitantly expensive, monitoring systems should, if possible, be designed to detect unauthorized releases before the ground water becomes polluted as stated in Subsection (b). This, we believe, would achieve the legislative intent as described above.

A commenter pointed out an apparent inconsistency between the objective of detecting leaks before ground water is affected and monitoring alternative number 4 which allows ground water monitoring. [87g] A commenter described another apparent inconsistency between the objectives of detecting leaks before ground water is affected and the fact that ground water monitoring is allowed when ground water does not have actual or potential beneficial uses. [71b] This commenter went on to state that this makes ground water monitoring not available as a monitoring alternative since most underground tanks in California are in areas where ground water has beneficial uses. These comments are rejected. Monitoring alternative number 4 is only applicable where the ground water being monitored does not have actual or potential beneficial uses. There are other alternative monitoring methods which utilize ground water monitoring as a backup to other monitoring methods. This is acceptable since the reliance for leak detection is placed on the other monitoring methods to detect leaks before the ground water is impacted.

The monitoring objectives in Subsections (a) and (b) have been modified to delete the objective of determining historic leaks in most cases. This also resulted in the

deletion of Subsection (c) from prior drafts of these proposed regulations. These actions were taken in response to commenters who pointed out that the detection of historic leaks was beyond the scope of the statute. [4a, 4b, 8, 37, 43, 48, 53, 61, 65, 67, 72, 74, 84, 84b, 85, 85b, 86, 87, 92, 94, 95b, 97, 102c, 102j, 113, 116, 125b, 139]

Commenters proposed that the requirement for baseline monitoring be deleted. [103j, 139] This comment is rejected. The determination of baseline environmental conditions was retained in Subsection (a) for situations where the evaluation of future monitoring results depends on knowing baseline conditions. Some monitoring methods have sensitivities which would make them unusable if significant background environmental contamination exists, regardless of its source. Additionally, significant background environmental contamination would make the detection of small leaks impossible since they could be masked by the baseline conditions. Baseline environmental monitoring would, we admit, provide information indicative of past releases. However, based on the above, we have rejected comments which implied that, due to the expense of cleanup of historic leaks which may have occurred when the current owner did not own the property, the determination of baseline conditions which could indicate historic releases should not be required. [44, 94] The determination that environmental contamination exists is only indicative of a possible leak, either current or historic, from the underground storage tank. The condition could also be due to leakage or releases from other sources. Other provisions of the Health and Safety Code and the Water Code could be applied in order to determine the source and to assure appropriate remedial action.

A commenter questioned whether or not Subsection 2610(b) regarding a contract between the underground storage tank owner and operator modified the statement in

Subsection (a) which requires the owner to implement monitoring. [168b] This comment is rejected. The local agency issues a permit to the underground storage tank owner who is responsible for monitoring. The statute provides that the operator is responsible for performing the monitoring; however, the owner, if different than the operator, is to provide some assurance for this through a contract with the operator.

Commenters raised the concern that local agencies do not have the expertise to review and approve various monitoring systems and that the State or Regional Boards should provide assistance. [84b, 85b, 113] This comment is rejected. The statute provides that approvals of monitoring for existing underground storage tanks are the responsibility of the local agency. Local agencies can recover fees in order to hire or contract to acquire the necessary expertise.

A commenter indicated that not all monitoring alternatives would be capable of determining the containment ability of the underground storage tank as required in Subsection (a). [102h] This comment is rejected. Any alternative that is capable of detecting future leaks has to be capable of detecting the containment ability of the underground storage tank.

The same commenter states that not all monitoring alternatives are capable of determining if hazardous substances are present in the environment around the underground storage tank as required in Subsection (a). [102h] This comment is rejected. This determination is not required in all cases. Additionally, most monitoring methods which rely on detecting the hazardous substance in the environment for leak detection are also capable of determining if other constituents

are present in the environment.

Commenters indicated that the requirement in Subsections (a) and (b) for measuring ground water quality was not needed. [86, 93, 97, 102, 139, 176] This type of monitoring is not necessary in all instances, and the proposed regulations have been modified by deleting this requirement as being applicable to all underground storage tanks. This also resulted in the deletion of Subsection (g) from the initial draft of the proposed regulations. However, ground water monitoring is still required if it is part of the selected monitoring method.

Commenters indicated that there may be situations where the only feasible monitoring would be ground water monitoring of a ground water which has beneficial uses. [87g, 138c] This is not allowed pursuant to Subsection (b), and the commenters questioned the alternatives. This comment is rejected. Primary monitoring which monitors ground water with beneficial uses does not protect the uses. Furthermore, underground storage tank owners could utilize monitoring alternative numbers 1, 2, 5, 6, or 7 [Section 2641] in this situation. If none of the alternatives are feasible, the underground storage tank cannot be adequately monitored and should be closed since its continued use could adversely impact the environment which is in conflict with the statute.

A commenter questioned whether or not ground water monitoring could be used as a primary monitoring method if the ground water being monitored had no beneficial uses but was hydraulically connected to ground water that had beneficial uses. [186b] This comment is rejected. Monitoring alternative number 4 (Section 2641) which provides for primary monitoring utilizing ground water monitoring prohibits the use

of the monitoring alternative in the case described by the commenter.

Visual monitoring, as specified in Subsection (c), is the required leak detection monitoring method pursuant to Section 25295(b) of the Health and Safety Code [formerly Section 252841(b)]. This can be factually supported since visual monitoring is the only method that provides an unquestionable answer as to whether or not the underground storage tank is providing containment. All other monitoring methods only provide an inference as to whether or not containment is being provided. Furthermore, these other methods have some inaccuracies, either due to a lower limit of detection or due to the uncertainties in the placement of monitoring probes such as ground water wells or vadose zone monitors. Therefore, visual monitoring should be utilized wherever and whenever possible.

Section 29292(b) of the Health and Safety Code [formerly Section 25284.1(b)] requires that underground storage tank owners who cannot implement visual monitoring must implement an alternative monitoring method. It is obvious that, in order to achieve the intent of the statute, some other form of monitoring must be implemented in these situations in order to detect leakage from underground storage tanks and protect the environment.

The concept of monitoring alternatives has been incorporated into Subsection (d) of the proposed regulations. This was done in response to commenters who claim that the statute requires that the regulations provide monitoring alternatives. [8, 9, 13, 53, 77, 80, 80a, 84, 84b, 85, 85b, 86, 86b, 87, 87b, 87c, 87d, 87g, 90, 90b, 97b, 102c, 104, 109b, 111, 112, 113, 113b, 115, 116, 118, 125b, 129, 129b, 136, 136b, 138b, 139, 139b, 151, 159] This modification was also made in response to commenters who indicated

that multiple monitoring methods as specified in the initial draft of the proposed regulations were not necessary in all situations.[8, 9, 13, 53, 65, 80, 84, 87, 92, 97, 102, 104, 109, 109b, 111, 112, 116, 129, 139] This modification will also significantly reduce the costs of compliance with the proposed regulations.

This was a concern raised by commenters based on the requirements of the initial draft of the proposed regulations for multiple monitoring methods. [13, 44, 68, 80, 84, 86, 102, 104, 113] The provision of monitoring alternatives and the wording of Subsections (e) and (f) also allow local agencies the flexibility to require the appropriate monitoring methods for site-specific conditions in response to commenters who wanted local agencies to have the flexibility provided in the statute. [53, 80, 86, 87, 104, 109, 138b, 139] However, this subsection only allows local agencies to require monitoring in addition to the minimums set forth in this article. This is based on the language in Section 25292(b) of the Health and Safety Code [formerly Section 252841(b)] which states, in part: "Alternative methods of monitoring...may be required by the local agency, consistent with the regulations of the Board" (emphasis added).

Commenters believed that the statute provided an alternative monitoring method specifically for underground storage tanks storing motor vehicle fuels. [17, 49, 52, 53, 78, 87, 90, 119, 136, 138] Subsection (d) was modified to allow the implementation of an alternative monitoring method instead of numerous methods as previously drafted. In addition, a monitoring alternative as described in the statute was included in Section 2641 [see Subsection 2641(c)(5)]. Commenters wanted a provision included in the proposed regulations which would allow for minimal monitoring in instances where phase-out or replacement of the underground storage tank was proposed. [34, 49, 117] The modification to Subsection (d) allowing the selection of a monitoring alternative and the inclusion of monitoring alternative number 8 [Subsection



[Subsection 2641(c)(8)] are in response to these comments.

(OAL 20B, 63, 124, 133, 145, 162A)

A number of commenters responding to the August 23, 1984 draft regulations were concerned about the monitoring requirements that provided few exceptions, [20, 91, 113, 135, 155, 176]. The commenters, who were looking at a monitoring scheme that required "everything-everywhere", reacted in one of two ways. (1) Some commenters objected to particular portions of the "monitoring scheme" which they regarded as excessive and of marginal utility in the context of the "everything-everywhere" requirements. For example, some commenters stated that tank testing and vadose zone monitoring were too costly [120, 176]. (2) Other commenters proposed their own alternative monitoring schemes.

Response: The State Board responded to the commenters' concerns about the August 23, 1984 draft monitoring requirements by eliminating the original "everything-everywhere" monitoring scheme and, in its place, substituted eight monitoring alternatives. The basic concerns of the commenters were taken into consideration in drafting these alternatives, even though the alternatives do not necessarily follow the commenters' recommendations exactly. Some of the reasons for rejecting the commenters' proposals include: (1) proposal did not provide the degree of reliable leak detection acceptable to the State Board; (2) proposal included requirements such as cathodic protection or striker plates, which are not a form of monitoring; (3) proposal provided special treatment for entities not designated in the statute; (4) proposal required more restrictive monitoring than a particular monitoring alternative prescribed in the statute; and (5) proposal based tank testing frequency on the premise that corrosion is the only failure mechanism, when in fact, improper

installation or settlement, can cause failure. The eight monitoring alternatives were designed to balance the strengths and weaknesses of their component parts in order to provide the degree of reliable leak detection mandated by the statute and acceptable to the State Board.

A commenter requested that the proposed regulations provide for an interim authorization to operate based on a demonstration that the underground storage tank was not leaking. [86b] This comment is rejected. Section 29292 of the Health and Safety Code [formerly Section 25284.1] requires the implementation of a monitoring system capable of detecting unauthorized releases. The above proposal would only provide an indication of the containment ability of the underground storage tank at the time the test was performed.

(OAL 78)

One commenter indicated that Section 25284.1 of the Health and Safety Code does not give the Board authority to set minimum monitoring frequencies for monitoring alternatives [102k].

Response: This comment is rejected. The State Board's interpretation is that conformance with these requirements provides the minimum leak detection capability necessary to protect ground water and, as such, does not exceed the authority of the State Board. The proposed regulations are within the scope of Health and Safety Code, Division 20, Chapter 6.7, which authorizes the State Board to develop alternatives to visual monitoring for detection of leaking tanks.

**(OAL 101A)**

A commenter requested that Subsection 2640(d) provide for performance standards rather than methods [116, 127]. This comment is rejected. The Health and Safety Code specifically mentions "alternative monitoring methods". Furthermore, the alternative monitoring methods are drafted as general performance standards with specifications for certain monitoring methods provided where they can be justified as necessary to assure that the monitoring method will produce the expected results.

A commenter believed that allowing local agencies the authority to increase the frequency of monitoring or include additional monitoring methods in any monitoring alternative is inconsistent with the Health and Safety Code. [139] This comment is rejected. Subsection 2640(e) is included to assure consistency with Subsections 29295(b) and 29292(b)(2) of the Health and Safety Code [formerly Sections 25284.1(b) and 25284.1(b), respectively] which state, in part, as follows, respectively: "Alternative methods of monitoring the tank on a monthly or more frequent basis, may be required by the local agency, consistent with the regulations of the board." and "The board shall develop regulations specifying monitoring alternatives. The local agency, or any other public agency specified by the local agency, shall approve the number of wells, the depth of wells and the sampling frequency, pursuant to the proposed regulations."

Subsection (f) has been included to allow for reduced monitoring frequencies in certain instances when environment conditions make it impossible to perform the required monitoring. This reduction cannot be supported technically since whenever the underground storage tank contains hazardous substances there is a threat to leak and the monitoring frequencies for each monitoring alternative are the minimum necessary to assure protection of the environment consistent with good engineering

practices and the costs involved for performing the monitoring. However, to require monitoring of underground storage tanks which might not be accessible during severe weather conditions or other similiar condition would probably result in a cost-effective decision to eliminate the underground storage tank even though it would normally be monitored consistent with minimum monitoring frequencies. Considering the potential hardships this could cause, this provision was added to the proposed regulations.

(OAL 90A)

A commenter recommended that a reduction in monitoring frequency should not be allowed in Subsection (f) because it is both impractical and unnecessary. [117c] This comment is rejected. This is based on the discussion in the previous paragraph which states that the subsection is necessary to minimize identified hardship situations

A commenter requested that Subsection (f) be broadened to include site-specific hydrogeologic conditions as a condition to allow reduced monitoring. [97c, 97d] This comment is rejected. This is based on the discussion in the previous paragraph which indicated that the reductions could not be supported technically, and that the subsection was only included to minimize identified hardship situations.

Subsection (f) from the initial draft of the proposed regulations has been eliminated, ~~from the proposed regulations~~ This is because the proposed regulations now contain a wide spectrum of monitoring alternatives which we believe are the minimum levels of monitoring that would provide appropriate environmental protection. Furthermore, the Health and Safety Code provides for variance procedures if an underground

storage tank owner wants to propose a site-specific or areawide monitoring method which is different than the monitoring alternatives in the proposed regulations; therefore, there was no need to repeat that provision in the proposed regulations. Commenters requested that this subsection be retained. [87g, 102, 103k, 127, 138b, 139] This comment is rejected. This is based on the discussion ~~in the draft regulations~~ above regarding minimum monitoring levels and Health and Safety Code provisions.

Subsection (g) from the initial draft of the proposed regulations has been deleted since it was determined that assurance ground water monitoring was not necessary to provide an acceptable degree of monitoring reliability. This deletion responds to comments which questioned the need for assurance ground water monitoring. [102, 176]

Subsection (h) from the initial draft of the proposed regulations was deleted from the proposed regulations since it was determined not to be needed. This deletion will satisfy comments which indicated that Section 2648 did not contain sampling methods as indicated in Subsection (h). [53, 87]

Subsection (i) from the initial draft of the proposed regulations was deleted from the proposed regulations since it was determined that this provision was not needed in this section. It was modified and included in a more appropriate place in the proposed regulations.

Commenters requested that a new subsection be added to describe monitoring requirements for new underground storage tanks. [119, 138] This comment was rejected. This section and article deal only with existing underground storage tanks.

One commenter asserted that the proposed regulations may result in a taking without compensation, giving rise to a cause of action for inverse condemnation. [102] This comment is rejected. The proposed regulations implement a regulatory scheme within the police power of the State; in order to protect ground water resources from threats of contamination by unauthorized releases of hazardous substances from underground storage tanks (a threat which has been realized in several documented instances, e.g., TCE contamination in the "Silicon Valley" area of Santa Clara County). The Legislature required that such tanks be constructed to certain specifications of be provided with monitoring systems capable of detecting unauthorized releases. Neither the Law nor the State Board's proposed regulations implementing this law result in any taking of property without compensation which would give rise to an action for inverse condemnation.

In order to constitute such a taking, the government must permanently deprive a property owner of the use and enjoyment of the property taken. The proposed regulations effect no such deprivation: underground storage tank owners may continue to use and enjoy their property, including underground storage tanks containing hazardous substances, subject only to reasonable construction and monitoring requirements. The assertion that such regulation constitutes a taking is totally without merit. The State, in an exercise of the police power, may regulate the uses of property without compensating aggrieved property owners in order to protect the safety, health, and welfare of the public (public resources). This is distinct from a taking for public benefit which entails the requirement for compensation and the cause of action for universe condemnation. The United States Supreme Court has held that enactment of the Surface Mining Control and Reclamation Act of 1977 (30

USC and 1201, et. seq.) which surface mine may be operated does not constitute a taking. Hodel v Virginia Surface Mining & Reclamation Association, Inc. (1981) // 101 S. Ct. 2352, 69 L. Ed. 2d 1 (1981).

The same commenter suggests that the proposed regulations are inconsistent with Federal Antitrust Laws because the burdens of compliance would enhance the competitive advantages of large oil companies to the detriment of independent distributors. [102] The proposed regulations have been modified to:

1. Give local agencies discretion to select an appropriate monitoring technique among several alternatives;
2. Provide qualifying small businesses with an interim monitoring alternative which allows deferring compliance costs for three years.

These modifications reduce the adverse economic impact of the proposed regulations on independent oil distributors and other small business.

## **Section 2641 Monitoring Alternatives**

Health and Safety Code Section 25292(b) [formerly Section 25284.1] specifies that when visual monitoring cannot be implemented, the underground storage tank owner shall implement an alternative method of monitoring. This section describes acceptable monitoring alternatives and conditions which affect the propriety of using each alternative.

### **Specific Purpose**

The specific purpose of this section is to prescribe monitoring alternatives to visual monitoring for existing underground storage tanks which are consistent with the monitoring objectives set forth in Section 2640; to implement Section 25292 of the Health and Safety Code [formerly Section 25284.1]; and to guide local agencies in their review of proposed monitoring alternatives or selection of monitoring alternatives for specific underground storage tanks or underground storage tank facilities. Eight alternatives have been described together with the considerations to be used by local agencies in determining which monitoring alternatives may be acceptable under particular site conditions. Each monitoring alternative includes 1 or more monitoring methods, and a specific method may be included in more than 1 alternative.



### Factual Basis

Health and Safety Code Section 25292(b) [formerly 25284.1 (b)] requires underground storage tank owners who cannot implement visual monitoring to implement an alternative method of monitoring. This alternative method of monitoring must be on a monthly or more frequent basis, and it must be consistent with the regulations adopted by the State Board. The Health and Safety Code goes on to list 3 alternative monitoring methods which have become monitoring alternative numbers 1, 2, and 5 in the proposed regulations. The remaining five monitoring alternatives contained in the regulations have been developed based on the Health and Safety Code statement that the alternative monitoring methods are not limited to those specifically listed in the Code.

Visual monitoring of the entire underground storage tank, including piping, is the preferred monitoring method in the statute, and it is required when feasible. However, a majority of underground storage tank owners will not be able to perform visual monitoring for the entire underground storage tank and connected piping system due to the fact that these systems are buried.

Commenters indicated that they do not believe that underground storage tank owners can realistically implement the required monitoring alternatives by the July 1, 1985 statutory deadline [17, 78, 84b, 85b, 86b, 87, 95b, 98, 102c, 113, 113c, 138b, 160, 162]. This comment is rejected. The State Board does not have the authority to change a statutory deadline.

Section 25292(b) of the Health and Safety Code [formerly Section 25284.1((b)] provides that alternative monitoring methods may be required by the local agency (emphasis added). The proposed regulations give the local agencies the authority to require a specific monitoring alternative. However, the regulations do not force the local agency to specify a monitoring alternative. Therefore, the word "may" is used in the last sentence of Subsection (b).

A commenter believes that Subsection (b) allows the local agency to go beyond the proposed regulations of the State Board without going through a formal application to the State Board [168B]. This comment is rejected. First, the procedures for State Board approval of more stringent local standards in Section 25299.4(b) of the Health and Safety Code [formerly 25288.3(b)] only pertain to design and construction standards for containment of hazardous substances in underground storage tanks. Therefore, local agencies are not precluded from requiring more stringent monitoring. Furthermore, these proposed regulations specifically give the local agency the authority to require monitoring methods in addition to those required in a specific monitoring alternative. Therefore, any such action by a local agency is consistent with the proposed regulations and within the statutory authority granted in Section 25292.1(b) of the Health and Safety Code [formerly Section 25284.1(b)].

Monitoring alternative number 1 [Section 2641(c)(1)] is the alternative described in Section 25292.1(b)(1) [formerly Section 25284.1 (b)(1)] of the statute. The required minimum frequency is consistent with that mandated in Section 25292(b) of the Health and Safety Code [formerly Section 25284.1(b)].

(OAL 36A, 36B)

(QAL 90B)

4.19

~~and evaluate/ Any action to modify this schedule will be approved with the approval/~~  
~~approval/~~ The local agencies are required to evaluate the proposed monitoring to

determine if the site-specific situation requires more frequent or another form of monitoring in order to adequately detect leaks and protect beneficial uses.

Additionally, local agencies have the authority to require more frequent or another form of monitoring if ~~if~~ they determine~~y~~ that this is needed.

Monitoring alternative number 2 [Section 2641(c)(2)] is the alternative described in Section 25292(b)(2) of the Health and Safety Code [formerly Section 25284.1(b)(2)].

This alternative is designed to provide initial detection in the vadose or unsaturated zone by utilizing vapor or other vadose zone monitoring. This monitoring should be frequent enough to allow detection and remedial action before the first ground water is contaminated. However, in order to assure that the vadose zone monitoring installed is effective, this alternative requires ground water monitoring which is the only absolute way to verify that ground water has not been impacted. The soils sampling and analysis is required in order to identify baseline conditions. This is necessary since if there was significant background contamination or natural occurrence of the constituent being monitored, it would take a large release to trigger detection above the baseline condition. This situation would render this alternative ineffective and, based on this, it should be rejected by the local agency.

In order to provide effective monitoring, the minimum frequency for vadose zone vapor monitoring is daily, and other vadose zone monitoring is weekly. Since at least one form of monitoring, is more frequent than monthly, as required in the statute,

the ground water monitoring frequency can be extended to semi-annually, especially since ground water monitoring is being required as backup to the vadose zone monitoring. Analysis of ground water samples is permitted to be by visual or field or laboratory analysis. Many constituents, such as gasoline, can be visually detected in samples; however, other constituents require laboratory analysis for detection.

(OAL 105)

A commenter recommended the following wording: "Vadose zone monitoring shall be performed as required by the local agency, but it is suggested to be monthly or more frequent" [138b]. This comment is rejected. The enabling statute, in the Health and Safety Code Section 25292(c), requires monitoring to be at least monthly. The word "suggested" allows too much leeway in the monitoring frequency. In order to provide effective monitoring, the minimum frequency for vadose zone vapor monitoring is daily, and other vadoze zone monitoring is weekly.

The collection and analysis of soils sampling at the time vadose borings and ground water wells are installed is specifically required in Section 25292.(b)(2) of the Health and Safety Code [formerly Section 25284.1(b)(2)]. Additionally, the results of soils analysis are needed to determine if any baseline levels of constituents are present, either due to background or prior releases, which could adversely affect future detection monitoring as described above.

(OAL 73)

A commenter stated that it is not necessary to analyze each soil sample. Pertinent samples can be determined by a consultant on site [102k].

Response: This comment is rejected. Soil sampling and analysis is required in order to identify baseline conditions. Samples are selected in accordance with Section 2645. The commenter has failed to explain how a consultant can decide that some samples need not be analyzed and still obtain the needed information on baseline conditions. All soil samples need to be analyzed for the following reasons: Liquid leaking from a tank will move primarily downward but with some lateral movement. The amount of lateral movement is a function of soil type and depth (i.e., the deeper the liquid moves, the farther to the side of an underground storage tank the plume extends). Thus, the further a boring is from an underground storage tank, the deeper it must go to intercept a plume. In order to avoid puncturing the underground storage tank, borings must be located at some distance to the side of an underground storage tank. Therefore, a boring must penetrate a considerable distance below the bottom of an underground storage tank in order to intercept a contamination plume. Consequently, all samples should be analyzed.

A commenter questioned the difference in details contained in the regulations between ground water monitoring and vadose zone monitoring [78]. This comment is rejected. Ground water monitoring utilizes widely accepted technology that can be easily specified for certain applications and needs to be specified in order to assure the effectiveness of the ground water monitoring system installed. Vadose zone monitoring utilizes various methods which are application-specific and cannot be generalized. Additionally, the section on vadose zone monitoring requires some demonstration that the system will work which is not required for ground water monitoring.

A commenter indicated that the reference to "monitoring alternative number 3" in Subsection (C) should be "alternative 2" [138]. The error in the regulations has been corrected.

A commenter believed that ground water monitoring was not needed to assure detection and should be deleted [204]. A commenter indicated that ground water monitoring deeper than 40 feet was excessive and redundant and should be eliminated [117C]. Commenters indicated that detection of contaminants in a ground water well does not automatically indicate a leak [117, 117c]. ~~THW~~ A commenter [98] also believed that ground water wells could lead to accidental or deliberate contamination of ground water. These comments are rejected. The Health and Safety Code specifically lists this monitoring alternative and requires ground water monitoring as a alternative to visual inspection for leak detection. Additionally, the proposed regulations, as modified, contain monitoring alternative number 3 which is similar to monitoring alternative number 2 except that the ~~of~~ ground water monitoring component was replaced by ~~of~~ underground storage tank testing. Staff believes that properly constructed wells which are located in a secure structure will nearly eliminate the problem of accidental or deliberate contamination. Furthermore, the few isolated cases of contamination associated with this type of problem will be overshadowed by the capability of detection provided by these wells. The commenter is correct that detection of contaminants in the ground water is not a definitive indication of a leaking tank; however, it is a clear trigger mechanism to investigate the contaminant ability of the tank to determine if a release has occurred.

A commenter indicated that the depth of ground water wells should be specified by

the Regional Boards [117c]. This comment is rejected. The Health and Safety Code makes no provision for this and specifies that the depth of wells shall be specified by the local agency pursuant to these regulations.

(OAL 150C)

A commenter believes that the number of wells are excessive, especially for small businesses or businesses with tanks in the 1,000 to 2,000 gallon range [85f]. This commenter believes that ~~Y~~ one down gradient well would be sufficient in many of these situations. These comments are rejected. There is no technical basis for reducing the number of wells specified in monitoring alternative number 2 for small businesses. These owners have been given an interim monitoring alternative number 8 which they can utilize for up to 3 years. The number of wells needed is based on many factors, almost all of which relate to the geology and hydrogeology beneath the tank. Estimates of ground water flow direction, the thickness and lateral extent of clay or sand layers or the presence or absence of buried channels (such as sand or gravel stringers which could provide a conduit for rapid movement of contaminants) are made extrapolating from a few borings and the closer they are together the better the estimate, but it is still only an estimate. We believe that the number of wells specified will provide a reasonable estimate of geology and hydrogeology to assure credibility in the ground water monitoring results.

(OAL 55A, 55B)

~~A Commenters~~ believes that the requirements in Subsection (c)(2)(C), (c)(4)(B) and (c)(6)(F) for local agencies to require periodic laboratory analysis should be changed from "shall" to "may" [87h, 187]. This comment is rejected. Visual or field analysis



cannot be expected to provide a degree of detection equivalent to accepted laboratory analysis. Therefore, it is essential that suitable analytical methods be employed on a periodic basis to ensure that constituents indicating a leak are not present below the detection limits of visual or field analytical methods normally used.

Monitoring alternative number 3 [Section 2641(c)(3)] is one which has been developed based on the authority given to the State Board in Section 25292(b) of the Health and Safety Code [formerly Section 25284.1(b)]. In this alternative vadose zone monitoring is relied on as the primary means of leak detection. In order to provide effective monitoring, the minimum frequency for vadose zone vapor monitoring is daily, and other vadose zone monitoring is weekly. The factual basis for soil sampling and analysis is to provide a baseline of background values as described in monitoring alternative number 3. Underground storage tank testing provides an annual verification of underground storage tank integrity to confirm the vadose zone monitoring. This monitoring alternative cannot be used if ground water which has beneficial uses exists shallower than 100 feet or if ground water shallower than 100 feet is hydraulically connected to usable ground water with beneficial uses. In these situations, ground water is more susceptible to contamination due to the shorter distance contaminants have to travel. The deeper the ground water the larger the release needed to cause contaminants to migrate vertically, and the higher the probability that the vadose zone monitoring methods utilized will detect the release.

Vadose zone monitoring does not have a proven record of providing detection to be used as the only monitoring method when a underground storage tank overlies ground water with beneficial uses. Vadose zone monitoring relies on accurately predicting

the subsurface geology, identifying its homogeneities and heterogeneities, and predicting migration of leakage from any part of the underground storage tank. This is because either the liquid or vapors do not migrate uniformly through the ground but select preferred paths based on geologic conditions. These predictions are unachievable to a level that would place sufficient assurance on vadose zone monitoring. Where ground water with beneficial uses exists close to the ground surface or can easily be contaminated, monitoring ground water is the only way to assure that it is not contaminated from a leaking underground storage tank.

Ground water monitoring in all situations is not economically feasible. Therefore, this alternative was developed for specific situations where other forms of monitoring could be used with some assurance that usable ground water would not become contaminated due to an inability of a vadose zone monitoring system to detect a leak. The 100 foot depth was selected based on the fact that a sizable leak would have had to occur for contaminants to migrate 100 feet vertically. This significantly increases the likelihood of detection with the vadose zone monitoring system. Furthermore, the 100 foot depth is a breakpoint for drilling methods and costs which tend to become more limited and expensive for deeper wells.

A commenter indicated that their vadose zone monitoring method could achieve detection of leaks that were equal to or less than that detectable by tank testing thereby making tank testing duplicative and unnecessary [115]. This comment is rejected. As discussed above, vadose zone monitoring is not precise. The commenter's assurances of reliability are based on tests where all variables are known rather than on field conditions with many unknowns. The State Board is not satisfied that the

vadose zone monitoring system in question will detect leaks equal to or less than that detected by a underground storage tank test in all circumstances. The commenter could not identify the specific circumstances where their test would be as accurate.

(OAL 146B, 146E)

Commenters were concerned that the number of wells required for ground water and vadose zone monitoring in Alternatives No.2 and No.3 could provide "conduits for subsurface contamination" due to improper surface seals [93b, 162b]. One commenter requested that the local agency be given the discretion to determine the number of monitoring wells necessary for the monitoring alternatives [93b].

These comments are rejected. Monitoring wells can be constructed with seals that will prevent cross-contamination. Seals for ground water monitoring wells are specified in Subsection 2647(i) and for vadose zone monitoring wells in Subsections 2648 (l), (m), (n), and (o). These design standards were developed specifically to prevent the problems which could arise from improperly constructed seals. The State Board believes that following these requirements will nearly eliminate the problem of accidental contamination. Although a few isolated cases of contamination associated with this problem may occur, the State Board felt that the contamination associated with a few isolated wells would be overshadowed by the capability for detection provided by the wells. In addition, the number of monitoring wells specified in the proposed regulations represent the minimum number that will satisfy the objective of the monitoring alternative when used in conjunction with the other prescribed monitoring methods. Allowing local agency discretion for the minimum number of monitoring wells would require a myriad of additional alternatives to cover the

possible combinations and add to the complexity.

(OAL 151A)

A commenter states vadose zone monitoring is superior to monitoring wells for motor vehicle fuels and volatile chemicals, and the 100 ft. cutoff is too deep for monitoring wells (alt. #2). Commenter recommends a 20 ft. cutoff. Commenter also states that inventory reconciliation and tank testing still allows leaks that affect water. This implies alternatives #1 and #3 are not adequate. [115f].

These comments are rejected. In all cases, deep ground water monitoring is required as a backup to other forms of monitoring including vadose zone monitoring.

Admittedly, the tank testing method does not provide 100% confirmation a leak does not exist, but it represents the best available technology at present. The probability is small that a leak will remain less than 0.05 gph for the length of time necessary to detect the leak. Also inventory reconciliation is not relied upon to provide total leak detection in any monitoring alternative.

(OAL 150D)

Another commenter expressed concern that ground water deeper than 100 feet could be degraded if ground water monitoring is restricted to depths less than 100 feet [212]. This comment is rejected. As discussed above, staff believes leaks large enough to reach 100 feet will be detected by the other detection methods required in the monitoring alternatives.

A commenter considered that 100-foot depth to ground water was too deep and the cutoff should be 20 feet [212]. This was based on the commenter's contention that vapor monitoring in the vadose zone is more reliable and more effective than ground water monitoring. This comment is rejected. As previously discussed, the Board believes that all ground water should be monitored to assure that the quality has not been degraded by unauthorized releases from underground storage tanks. Recognizing the technical and economics realities of requiring ground water monitoring for all depths, however, the Board chose the 100-foot depth as a reasonable compromise. A substantial unauthorized release is necessary for contaminants to migrate 100 feet vertically, and such a volume of leakage would be more likely to be detected with a vadose monitoring system. Furthermore, vadose zone monitoring (i.e. vapor monitoring, as referenced by the commenter) does not have a proven record of success in subsurface applications. The test results referred to by the commenter, for a single case at a Palo Alto gas station, do not provide convincing evidence that the vapor monitoring system should be used as the principal method of monitoring for shallow ground water (less than 100-feet deep). Direct measurement of contamination in the ground water provides the greatest assurance of detecting an unauthorized release.

(OAL 57, 106)

Commenters believed that the 100-foot minimum depth to ground water was too deep and the cut-off should be 50 feet [87, 87h, 102k, 138, 138b]. This comment is rejected. As discussed previously, we believe that all ground water which has beneficial uses should be monitored to assure its quality; but we realize the impracticability, both technically and economically, of doing so. One hundred feet is a reasonable depth to use as a limit for ground water monitoring. This determination is based on the economics of drilling, and on the fact that the large size of a leak

which would be necessary to migrate 100 feet would significantly increase the likelihood that the vadose zone monitoring system will detect the problem.

A commenter indicated that this monitoring alternative is not implementable since it is too difficult to prove the effectiveness of the monitoring system as required in Section 2646 [203]. This comment is rejected. Since vadose zone monitoring systems are both-type and site-specific, it is impossible to develop sufficiently comprehensive generic standards for their installation to eliminate the effectiveness test. Therefore, the regulations contain a very clear performance standard to demonstrate the effectiveness of the installed system.

A commenter believes that vadose zone monitoring alone would be sufficient and ground water monitoring should not be necessary [55b]. This comment is rejected. There are specific situations which we believe vadose zone monitoring will provide effective leak detection in order to prevent ground water contamination. These situations are those that do not conflict with the prohibition of the use of this monitoring alternative. However, there are other situations, as described in the prohibitions to the use of this monitoring alternative, where vadose zone monitoring alone does not provide the degree of reliability which is acceptable.

(OAL 77A, 88B)

Commenters requested that the definition of ground water be included in the regulations [77, 102k, 117]. A definition of ground water has been added to the regulations.

(OAL 77B, 77C)

A commenter stated that the requirement in subsection (B) to determine whether first ground water is "significantly deeper" than 100 feet by on site borings is ambiguous and uncertain because there is no specification as to how much deeper than 100 feet this term refers to [102k]. In addition the commenter felt that because regulations do not require monitoring wells of depths greater than 100 feet, an on-site boring greater than 100 feet in depth is unwarranted. This comment is rejected. The proposed regulations provide that monitoring alternative number 3 cannot be used if ground water is less than 100 feet deep. Thus, in determining whether or not groundwater is, in fact, deeper than 100 feet, the local agency must take into consideration the normal fluctuations in ground water table elevations. Ground water levels fluctuate seasonally (based on the time of year) and historically (based on the effect of consecutive wet, average, or dry hydrologic years). The seasonal and historical fluctuations are influenced by subsurface recharge to the ground water (i.e. seepage from surface waters or effluent streams, infiltration from irrigation and precipitation) and subsurface discharge (i.e. evapotranspiration, pumpage to the ground surface, influent streams receiving discharged water from the subsurface). Variations below the highest anticipated ground water elevation from a few feet to tens of feet can be found depending on the location within the State, the season of the year, and the impact of previous hydrologic years. Accordingly, Section 2648(p) of the proposed regulations requires that the highest anticipated elevation of the ground water can be determined by reviewing water level measurements for wells within one mile of site. This analysis will determine the range of depths which must be used for drilling to existing ground water. For example, at a given site the anticipated seasonal ground water elevation (based on review surrounding well information) may vary from 90 feet during a wet year to 120 feet during a dry year. Then the boring must be 120 feet to determine the "actual" depth to ground water compared to that anticipated by

the surrounding well information. The local agency must establish that statistically representative ground water depths do not rise above the 100 feet elevation. Due to the myriad <sup>at</sup> variations in ground water fluctuations possible throughout the State, the proposed regulations included the term "significantly deeper". The regulations are not "unclear", because the local agency needs the discretion to make this determination on a case by case basis.

A commenter indicated that a Department of Water Resources Bulletin lists all ground water in the State as having some uses thereby eliminating this alternative for use whenever ground water is shallower than 100 feet [71b, 102k]. This comment is rejected. Designation of actual and potential beneficial uses of ground water is the responsibility of the Regional Boards. Such designations are part of their Water Quality Control Plans. No shallow ground water in the State has been designated in a manner which would preclude use of this monitoring alternative.

(OAL 160C)

One commenter indicated that the annual testing requirement in Subsection (c)(3)(E) is in conflict with testing under Subsection 2671(d) which requires quarterly testing [168]. This comment is rejected. Subsection (c)(3)(E) refers to tank testing, whereas Subsection 2671(d) refers to inspecting the tank during temporary closure, which does not involve tank testing.

Monitoring alternative number 4 [Section 2641(c)(4)] is one which has been developed based on the authority given to the State Board in Section 25292(b) of the Health and Safety Code (formerly Section 25284.1(b)). Monitoring of shallow ground water which has no beneficial uses on a regular basis has been demonstrated to be a very



effective leak detection method. This is because ground water monitoring if done appropriately is one of the few methods that provides reliable information on the quality of the ground water. If shallow ground water is found to be contaminated it immediately forces an investigation into the containment ability of the tank. There may be situations where this is the only monitoring alternative available due to the shallowness of the ground water and nature of the stored substance. As described previously, guidelines for establishing the minimum number of wells are specified in order to assure a reliable monitoring system.

A commenter requested that the requirement for ground water monitoring be deleted from this monitoring alternative [204]. This comment is rejected. Ground water monitoring is the primary method of leak detection, and its elimination would make this alternative totally ineffective. Soils monitoring alone is not an effective monitoring method due to the costs of drilling new borings each time sampling is required and the fact that it only samples a specific point. Ground water monitoring, if performed correctly, provides an indication of the quality of the water in the zone being sampled for some distances around the well.

This monitoring alternative is not permitted to be used in situations where first ground water has actual or potential beneficial uses. The reason for this is to preclude impacting usable ground water. This will occur if the underground storage tank being monitored leaks since ground water monitoring which relies on detecting contaminants in ground water is the sole monitoring method. This monitoring alternative is not permitted when the monitoring well cannot be screened within the zone of the fluctuating ground water surface. This is the zone which will provide the earliest detection since it is impacted first. The inability to screen a well in this

zone would significantly reduce the effectiveness of this monitoring alternative because the zone being impacted first will not be monitored.

(OAL 92A)

A commenter requested that the 30 foot depth in Subsection (A)(i) be changed to a distance below the underground storage tank invert rather than the ground surface [87]. Another commenter indicated that the 30-foot depth limited the use of this monitoring alternative to areas with extremely high ground water [117c]. These comments are rejected. Any underground storage tank leak is going to contaminate unsaturated soils and these contaminated soils will continue to release contaminants which will migrate to and contaminate ground water unless they are removed. The practical removal depth, considering both economics and current technical capabilities is about 30 feet. Since the bottom of the underground storage tank is as much as 15 feet below the ground surface, measuring 30 feet from the tank bottom in the unsaturated zone would result in about 45 feet of contaminated soils before a leak is detected by only monitoring ground water alone. Numerous areas with deep contaminated soils would remain due to the conditions on cleanup capabilities described above.

(OAL 157A)

Commenters indicated that the prohibition against use of this alternative in areas where the shallow ground water does not have beneficial uses but is hydraulically connected to ground water which has beneficial uses [Subsection (A)(iii)] precludes the use of this monitoring alternative. [168, 203] This, the commenter states, is due to the inability to accurately determine hydraulic continuity. This comment is rejected. Due to the difficulty of cleaning-up contaminated ground water, it is imperative that

all ground water, which is hydraulically connected to ground water with beneficial uses be kept uncontaminated. This monitoring alternative allows some ground water contamination as part of the detection program and, therefore, is only acceptable where the ground water subject to possible contamination is isolated from ground water with beneficial uses. We realize the difficulty is determining whether or not hydraulic continuity exists; however, the mandate to protect ground water with beneficial uses necessitates this requirement.

(OAL 161A)

A commenter questioned the use of the expression "perennial ground water" since ground water levels do not flow in or rise and fall in the same manner that streams do. [168.168b]. This comment is rejected. Perennial means present throughout the year or throughout many years. Therefore, perennial ground water means a body of ground water that is present throughout the year. Some perched ground water aquifers are seasonal and therefore, could only be sampled when water was present. The purpose of this monitoring alternative is to take samples throughout the year.

A commenter questioned the legality of granting authority to the local agency in Subsection (A)(iii) to waive the requirement for screening 10 feet above the highest anticipated ground water [168b]. This comment is rejected. The statute provides that local agencies may require alternative monitoring methods consistent with the regulation and the regulations provide for a waiver. If ground water is less than 10 feet deep the screened interval of the well would have to extend above the ground surface in order to satisfy the regulations. This is obviously not practical nor does it serves the intended purpose of this requirement.

The regulations specify the minimum number of wells required for an adequate monitoring program. The factual basis for this is similar to that described for monitoring alternative number 2. A commenter questioned whether the reference to "monitoring alternative number 4" in Subsection (B) for the number of wells was correct [138]. This comment is rejected. The number of wells specified in Table 4.1 for monitoring alternative number 4 is a reference to a specific section of Table 4.1 for monitoring alternative number 2. However, we believe it would be more confusing to have a reference in the text to another alternative in the table.

(OAL 144A)

One commenter stated that risk is not proportional to tank size and that large tanks do not require additional monitoring wells. This commenter argued that the effectiveness of a vadose zone monitor is not affected by the size of a tank despite recognition that additional monitoring locations might be necessary. The commenter then went on to define the "high risk" tanks for which for which additional safeguards might be necessary [116c]. This comment is rejected. It is not clear from the wording of the comment whether the commenter's objection refers to the required number of ground water monitoring wells, vadose zone monitoring locations, or both. In either case, the regulations have never employed the concept of "high risk" as a criterion for determining the required number of monitoring points. The concept is introduced by the commenter who has erroneously assumed that the reference to tank size implies that the Board considers larger tanks to be higher risk tanks. In fact, the number of wells or vadose zone monitoring points needed to adequately monitor a tank or cluster of tanks will depend on several factors, one of which is the size and shape of the tank or tank cluster. Some tanks are 30 to 40 feet long. A plume emanating from a leak near one end of the tank may not spread laterally a sufficient

distance to be detected by one monitoring well located down gradient opposite the midpoint of the tank. In other instances, the direction of ground water movement past the tank may not be precisely known or it may vary for any of several reasons (e.g. changes in seasonal pumping patterns). Under these circumstances more than one well is necessary. It's necessary, therefore, to consider the size of the tank or tank cluster, in addition to these other factors, in order to design a monitoring network with enough monitoring wells to be reasonably sure that a leak occurring at any place on the tank will be detected. Under favorable circumstances, a small tank may be adequately monitored by one well. It is for this reason that a size factor is used in the criteria for the use of ground water monitoring wells and not a risk factor. Furthermore, the age of a tank is not the only factor that determines whether the tank is likely to leak. Newly installed tanks can leak due to undetected construction flaws, damage incurred during installation or due to settlement or other forms of ground movement, improper pipe connections, faulty seals, etc. Therefore, the age of a tank or the fact that it is not cathodically protected are not sufficient reasons to predict the potential for leaks to occur.

The requirements for analysis of ground water samples in Subsection (B) are similar to those in monitoring alternative 2, Subsection (C), and the factual basis is the same. A commenter requested that the statement that "local agencies shall require periodic laboratory analysis if visual or field analysis do not provide a degree of detection equal to that of laboratory analysis" in Subsection (B) be changed to "may require" [187]. This comment is rejected. This is the same comment from the same commenter on the same requirement in Subsection (c)(2)(C). It is rejected for the same reasons cited previously.

A commenter indicated that a Department of Water Resources Bulletin lists all ground water in the state as having beneficial uses thereby making this a non-alternative [71b]. This comment is rejected. This is the same comment by the same commenter as listed in Section 2641(c)(3) and is rejected for the same reason.

(OAL 116)

A commenter believed that the frequency for monitoring ground water samples listed in Table 4.1 should be monthly instead of weekly to correspond to the text in Subsection (B) [111b]. Table 4.1 has been appropriately modified.

Subsection (C) requires soil sampling and analysis at the time ground water wells are installed. This is necessary to provide a baseline of constituents to be monitored in order to assure that the ground water monitoring will be effective in detecting future leaks and that the indication of future leaks will not be masked by the level of background constituents to be monitored.

Monitoring alternative number 5 [Section 2641(c)(5)] is the third alternative described in Section 25292(b)(4) of the Health and Safety Code [formerly Section 25284.1(b)(3)]. The types of monitoring methods required to be employed and the limitation to motor vehicle fuel tanks are as specified in the statute.

The principle of inventory reconciliation is to determine if there is a difference between the volume which should be in storage based on metering of inputs and withdrawals from a fixed point in time and the actual volume in storage based on measuring the liquid level in the underground storage tank and converting it to a volume. This is what Subsection (B)(i) requires.

Subsections (B)(ii) and (B)(iii) define the 2 methods which are used to determine the calculated volume in storage. The difference between Subsections (ii) and (iii) is the period over which the throughput error is calculated. The throughput error is based on the fact that for each gallon of hazardous substance metered the meter reading may be slightly over or under one gallon. The method described in Subsection (ii) utilizes the prior days ending volume in storage as the base for the day's input and withdrawal calculations. This eliminates any throughput or metering errors from prior days. In this case, the allowable variation described in Subsection (iv) is the sum of the throughput error for the day and the measurement error.

The method described in Subsection (iii) compares the calculated volume in storage from a base day to the actual volume in storage. The base day is the last point in time when the actual volume of stored substance was used as the base for the daily input and withdrawal calculations. For example, at the end of day 10, the calculated volume in storage is equal to the actual volume in storage immediately prior to day 1 (base day), plus or minus all inputs and withdrawals, respectively, during the 10 days. The throughput error in this case is cumulative since the base day and is determined based on either total inputs, total withdrawals, or one-half the sum of the inputs and withdrawals. Basing the throughput on the sum of inputs and withdrawals would be giving double credit since the throughput error is based on the errors in both input

and withdrawal meters. This calculation is necessary since the State Board took the position that metering or throughput errors will occur and should be accounted for in the allowable variation.

(OAL 92B, 156B)

Commenters indicated that this monitoring alternative would be ineffective in detecting leaks [159b, 195]. Another commenter stated that alternatives without vadose zone or ground water monitoring would be ineffective [117c]. In addition the commenters felt that the underground storage tank operator/owner should be required to submit to the local agency, under penalty of perjury, quarterly statements on inventory variations and this information should be used by the State Board to determine annually the effectiveness of inventory reconciliation (Alternatives 5 and 6). These comments are rejected. This monitoring alternative is provided for in the statute; therefore, it must be available for underground storage tank owners. The monitoring effectiveness is only as good as the accuracy of the the inventory reconciliation error which is permitted, and, because of the limits imposed on inventory reconciliation errors and the requirement for tank testing, this alternative should be effective in assuring early leak detection. Section 2644(e) of the proposed regulations already requires the underground storage tank operator/owner to submit quarterly statements on inventory variations from allowable errors, and, as such the commenters' request to include this responsibility is not necessary. With respect to annual review of the effectiveness of inventory reconciliation by the State Board, Section 25295(a) of the Health and Safety Code [formerly Section 25284.4] specifies that the local agency shall review the underground storage tank permit whenever there has been an unauthorized release. Accordingly, at such time when an unauthorized release has been detected by monitoring methods (i.e., vadose zone or



ground water) other than inventory reconciliation, it is the local agency's responsibility to review the monitoring methods previously used and their suitability as a long-term monitoring methods.

(OAL 110)

Commenters requested that this monitoring alternative be available for all underground storage tanks [85, 139c]. This comment is rejected. Section 25292(b)(4) of the Health and Safety Code [formerly Section 25284.1(b)(3)] states that this monitoring alternative is "for monitoring tanks containing motor vehicle fuels." To broaden the use of this monitoring alternative would be inappropriate because inventory reconciliation is not very reliable in the detection of small leaks. However, it is provided in the statute for a limited category of underground storage tank. It was decided not to broaden the use of this monitoring alternative and thereby increase the number of underground storage tanks with monitoring systems which provide a lesser degree of reliability.

Commenters suggested that this alternative be limited to inventory reconciliation [85c] and that vadose zone monitoring be added to this monitoring alternative [204]. These comments are rejected. As stated above, this monitoring alternative is directly from the statute and any deletions or additions of monitoring methods would modify the statutory monitoring alternative.

(OAL 22, 28A)

Commenters requested that a monitoring alternative which allows for inventory reconciliation, pipeline leak detectors, and periodic underground storage tank testing be included in the proposed regulations [17, 27b, 78, 98, 138b]. Monitoring alternative

number 5 has been included in the proposed regulations in response to these comments.

Subsection (B) establishes inventory reconciliation procedures and allowable variations. Any discrepancy in excess of the allowable variation must be investigated to determine the cause of the discrepancy. Some level of variation must be accepted since the metering used to calculate storage volumes and the measuring to determine actual stored volumes have some degree of error. Inventory reconciliation is like balancing a checkbook. However, with inventory reconciliation one is never sure of the exact amount of an input (deposit), withdrawal (check) or residual volume (balance). Therefore, one will never get an exact balance at the end of the period except as a result of luck. For this reason, the proposed regulations specify the size of the variation that can be accepted and still provide reliable leak detection. A basic concept is that the metering and measuring could, by chance, be accurate; yet a leak that is within the accepted variation could be occurring without detection. Alternatively, the metering and measuring could be inaccurate enough to cause the inventory reconciliation to be outside of the allowable variation despite the fact that no leak is occurring.

A commenter believes that the references to Subsection (v) in Subsections (ii) and (iii) should be to Subsection (iv) [87H]. The commenter is correct, and the change has been made. A commenter requested that the maximum 30-day period in Subsection (iii) be changed to 31 days [102]. The proposed regulations have been modified to make the suggested change.

Subsection (iv) defines the allowable variation as being the sum of the measurment

error in Table 4.2 and the throughput error. The accuracy of inventory reconciliation can be affected by numerous possible errors including temperature expansion or contraction of the stored substance, vaporization, input and withdrawal meter errors, liquid level determination errors (first step to determining actual stored volumes), underground storage tank calibration errors, underground storage tank deflection errors, and errors associated with the underground storage tank calibration chart being based on a level underground storage tank ( which usually does not exist either because it was originally installed with a tilt for water accumulation or due to settlement).

Most of these errors can be accounted for by the underground storage tank owners/operators such that the inventory reconciliation process can be made more accurate. Temperature measurements can be taken and appropriate volume fluctuations can be incorporated into the process to eliminate this error; however this is far from standard practice. Vaporization can be significantly minimized or eliminated by physical facilities such as drop tubes below the liquid surface and vapor recovery devices. As mentioned previously, most installed underground storage tanks are not level and have deflected to some extent. This results in the underground storage tank calibration chart from the manufacturer not representing the true volume in the underground storage tank at specific liquid levels which imposes errors in the inventory reconciliation calculation. Furthermore, manufacturer underground storage tank calibration charts are inaccurate since constructed underground storage tanks generally have a plus or minus 5 percent tolerance from design (a 10,000 gallon underground storage tank will actually have a capacity somewhere between 9,500 gallons and 10,500 gallons). These errors can be eliminated if a underground storage tank calibration is performed on the in-place underground

storage tank and a calibration chart developed.

As noted, all of these errors can be eliminated. However, the regulations do not require that any of these sources of errors be addressed. The regulations do specify a performance standard in the form of an allowable variation which takes into account those factors which cannot be totally eliminated as will be discussed below. Some tank owners may decide to address these error factors in order to achieve the allowable variations and others may not.

The State Board determined that metering errors and liquid level measurement errors could not be eliminated and therefore some reconciliation variation should be provided before a tank would be assumed to be leaking. These two variations are the throughput error and measurement error in the regulations. Section 25292(b)(4) of the Health and Safety Code [formerly Section 25284.1(b)(3)] provides that the State Board shall specify an allowable inventory reconciliation shortage which, if exceeded, would require the underground storage tank owner to perform an underground storage tank tightness test. This test is required in Subsection 2644(f) as referenced in Subsection 2641(c)(5)(B).

In California, meters which are used for either wholesale or retail sales are required to be calibrated to be accurate to within plus or minus 0.22 and 0.53 percent, respectively. As described in Section 2644, meters used for inventory reconciliation must be calibrated within these accepted accuracies. Therefore, the possible worst case metering error would be 0.75 percent. This would only occur if both the input and withdrawal meters were inaccurate to the maximum degree allowable and in the same direction (i.e., either both short or over). Normally meters are not operated at

the maximum allowable inaccuracy, and two or more meters used for inputs and withdrawals are not inaccurate in the same direction. Therefore, to allow the maximum possible error or 0.75 percent would be too lenient. The State Board decided to allow 1/5 of the maximum possible error or 0.15 percent of throughput because they believed it to be a reasonable margin of error.

Measuring of the liquid level in the underground storage tank is normally performed using a stick which is calibrated in 1/4-inch increments. New electronic equipment recently became available which would allow liquid levels to be measured to plus or minus 0.1 inch. A significant amount of testimony and written comments were received on the accuracy of stick readings and the use of electronic gauging. Based on the testimony, the State Board determined that an accuracy of plus or minus 1/4-inch in stick measurements was reasonable. The values given in Table 4.2 are a reflection of this accuracy for various size tanks.

(OAL 35B, 60A, 72, 79A, 79B, 129, 134A, 144B, 152D, 155)

Commenters objected to both the throughput error and the measuring error [35, 53, 71b, 87, 90, 90c, 90e, 90f, 102, 102k, 116, 116c, 136d, 138, 140c, 155, 155c, and 160]. These comments ranged from (1) there should not be an upper limit for inventory reconciliation variable (i.e., let owners/operators evaluate the inventory reconciliation to determine possible leakage), (2) the throughput error should be either 0.5 or 1 percent, (3) the measurement error should be 3/4 of an inch, (4) the levels of inventory reconciliation variation are unnecessarily restrictive and so low that this monitoring alternative is not feasible or workable because no one will be able to achieve the levels, (5) strict inventory variations are not required when other monitoring requirements are proposed, (6) the allowable measurement error requires

electronic gauging to achieve, and (7) the regulations should require temperature correction. These comments are rejected. The statutes require the State Board to establish a limit for inventory reconciliation variation. The allowable throughout error, as discussed previously, was determined to be reasonable. The measurement error should be achievable using a stick and does not require electronic gauging. The record supports the position that these allowable inventory variations are achievable. Some underground storage tank owners may have to calibrate their underground storage tanks or institute temperature measurements in order to stay within the allowable variation; however, there is no need to require such actions in the proposed regulations.

(OAL 144C)

Commenters indicated that electronic underground storage tank gauging (liquid level detector) was very accurate and technically feasible and implied that it should be required [116c, 124, 131, 160]. This comment is rejected. This type of gauging is accurate and feasible; however, there was significant testimony on its installation cost, maintenance cost, and possible downtime. For these reasons, the State Board decided to establish an allowable inventory variation that could be achievable with state of the art underground storage tank sticking techniques. This does not preclude the use of electronic gauging systems which would probably make the allowable inventory variation easier to achieve.

(OAL 44B)

Commenters indicated that Table 4.2 is unclear because the column headings are inappropriately placed and the allowable measurement error for underground storage tanks between 4,000 to less than 8,000 gallons should be 50 gallons [80c, 87, 102, 138,

and 140]. The proposed regulations were modified to correct this error, and the table headings were realigned.

Commenters indicated that the calculation requirements for inventory reconciliation are unclear [87, 91, and 91c]. Some changes were made in this subsection to resolve the objections raised in these comments. There is some unavoidable complexity in performing the required calculations; however, the proposed regulations provide sufficient detail and direction to an underground storage tank owner/operator.

(OAL 134B)

A commenter indicated that Table 4.2 should be modified to provide a more realistic allowable measurement error [155c]. This comment is rejected. Measuring of the liquid level in the underground storage tank is normally performed using a stick which is calibrated in 1/4-inch increments. New electronic equipment recently became available which would allow liquid levels to be measured to plus or minus 0.1 inch. A significant amount of testimony and written comments were received on the accuracy of stick reading and the use of electronic gauging. Based on the testimony, the State Board determined that an accuracy of plus or minus 1/4-inch in stick measurement was reasonable. The values given in Table 4.2 are a reflection of this accuracy for various size tanks.

The requirements of Subsection (C) for yearly underground storage testing is necessary to assure underground storage tank containment. As was clearly pointed out in Subsection (B), inventory reconciliation has the potential to mask a leak. A leak of just over 0.05 gallons per hour could leak approximately 438 gallons per year. If meters were indicating a high of only 0.012 percent (i.e., for every 1,000 gallons

withdrawn, the meter would register 1001.2 gallons, the 438 gallons leaked would be completely masked in inventory reconciliation. The 0.012 percent is well within the required meter tolerance. A underground storage tank test would be able to detect this quantity of a leak. Subsection 25292(b)(4) of the Health and Safety Code [formerly Section 25284.1(b)(3)] specifically gives the State Board the authority to require underground storage tank testing at specific intervals. The State Board determined that yearly tank testing is a reasonable frequency considering the costs and the size of possible undetected releases which could occur during the one-year period.

(OAL 53C, 67C)

Commenters believed that underground storage tank testing should be required on a less frequent basis such as biannually or once every 5 years [87h, 91b, 91c, 102]. A commenter suggested that annual tank testing be deleted from this alternative or that another alternative be added with only inventory reconciliation [85e]. These comments are rejected. For the reasons cited above, it is clearly both cost-effective (\$400 per test) and environmentally prudent to require yearly testing.

Subsection (D) requires the monitoring of pipelines as part of this monitoring alternative. Pipeline leaks are at least 4 or 5 times more common than underground storage tank leaks. Section 25292(b)(4) of the Health and Safety Code (formerly Section 25284.1(b)(3)) requires that pressurized pipelines have leak detection devices. The device that is used in industry is an automatic on-line pressure loss detector which is capable of detecting a loss in pressure before delivery begins. This loss in pressure is an indication of a leak. Once a loss in pressure is detected, the device restricts flow in the pipeline as a means of informing those person operating the



facility that a pipeline leak is indicated.

The person withdrawing liquid from the underground storage tank will be aware that it is taking longer than normal to transfer the liquid. In order to assure detection of the fact that the pressure loss detector has detected a possible leak, the proposed regulations require that the detector be connected to an alarm or that the flow restriction device reduce the flow by at least 50 percent. The 50-percent reduction will provide some assurance that the person withdrawing liquid will be alerted to the problem due to the extended time necessary to complete the withdrawal.

Suction pipelines cannot be monitored with pressure loss detectors. However, there are obvious physical indications when a hole occurs in a suction pipeline. These indications include loss of prime (the pump is running but not pumping liquid), spinning or jumping wheels due to air in the pipeline, the pump runs fast when first started and then slows down, or a rattling sound when pumping and an erratic liquid flow indicative of air/liquid mixture.

(OAL 143A)

A commenter questioned how suction pipeline monitoring was to be performed daily [116c]. This comment is rejected. There is no specific method for monitoring suction pipelines other than by pressure or precision tests which are not practical to perform on a daily basis. However, as discussed above, there are obvious indications that a leak exists during the operation of a suction pipeline. The regulations would require the operator to inspect the system daily for any of these indications.

Commenters requested that the monitoring of pipeline leak detectors be allowed similar to that in Article 3; that is including a provision for a 50 percent reduction

in flow [10, 87, 102]. This comment was based on the second draft of the proposed regulations and has been incorporated into the proposed regulations.

A commenter requested that the underground storage tank owner have the option of using the visual or audible alarm or the flow reduction as a method for detecting if the pipeline pressure loss detector has detected a leak [53]. The regulations have been modified to reflect this comment.

Monitoring alternative number 6 [Section 2641(c)(6)] is similar to monitoring alternative number 5; however, the allowable inventory variations are larger; and because of this, additional backup monitoring is required. As was discussed in monitoring alternative number 5, inventory reconciliation is subject to numerous errors which can easily mask a leak. By minimizing the allowable variation as was done in monitoring alternative number 5, the chances for masking a leak are reduced. Alternative No.6 was added to address the comments received on the inability to achieve the allowable variations specified in monitoring alternative number 5. However, the State Board decided that the allowable variation specified in this monitoring alternative was too large to provide adequate leak detection without additional backup monitoring beyond that prescribed in monitoring alternative number 5 (tank testing). Therefore, backup monitoring in the form of either vadose zone or ground water monitoring is required.

(OAL 36C)

A commenter indicated that the limitation on the use of this monitoring alternative to only those underground storage tanks storing motor vehicle fuels is only mentioned in Table 4.1 and not in the text [78c]. In light of this comment the proposed regulations have been revised to specify the limitation in the text.

Subsection (B) specifies the allowable inventory variation which is acceptable. The complete discussion of the basis for inventory reconciliation variations is contained in the factual basis for monitoring alternative number 5. The selection by the State Board of the daily, 7-day, and long-term allowable variations was based on testimony received and what is accepted practice in industry. It is clearly the intent of the State Board to make this variation relatively easily achievable since backup

monitoring is required. The 100-gallon per day variation was mentioned as achievable in many of the original comment letters. As the time period increases, the inventory variation should decrease since the errors tend to average out. Again, based on testimony received, the 7-day variation values of 5 percent of throughput or 100 gallons were selected as being achievable. The long-term variation was also based on public testimony and accepted industry practice as stated in API publication 1621.

(OAL 163B)

A commenter objected to the sensitivity requirements for inventory reconciliation suggesting that an appropriate standard for the daily variation would be 100 gallons or five (5) percent of the daily throughput volume, whichever is higher [125]. In response to these comments, the proposed regulations were modified to use the 100 gallon "trigger" as recommended. The use of five (5) percent of the throughput volume (if it exceeds the 100 gallon level) as an additional trigger was rejected because this error was much greater than that which could be expected under normal operating conditions. As previously discussed, the maximum possible metering error is 0.75 percent, when the input and withdrawal meters are inaccurate to the maximum degree allowable for wholesale and retail deliveries. Accordingly, the throughput error proposed by the commenters was approximately seven (7) times that which could be reasonably expected and this aspect of the comment was rejected.

(OAL 79A, 79C, 152D)

Commenters indicated that these variations are unachievable [90, 90c, 90e, 90f, 102, 102k]. Another commenter indicated that the 50 gallons per day limit in the proposed draft of the regulations was too stringent and unachievable [116]. The first comment is rejected. Based on the discussion presented in monitoring alternative number 5 on

inventory reconciliation and other comments received, the allowable daily variation was set at 100 gallons. This was a modification from the original 50 gallon value in the original draft and is responsive to the second commenter.

(OAL 71, 82B)

Commenters recommended that the allowable inventory reconciliation error be omitted because of the backup monitoring systems, but still require the underground storage tank owner to perform the inventory reconciliation procedure [71b, 90c, 90e, 102, 102k]. This comment is rejected. Deleting the allowable inventory reconciliation error figure would allow the underground storage tank owner to evaluate the results of inventory reconciliation without any standard to judge against. This would result in inconsistencies in the review of this data and detection of leaks. Thus, the backup monitoring systems would not have a reliable primary monitoring system.

A commenter questioned the availability of this monitoring alternative if tank inputs were not metered [117c]. This comment is rejected. A critical component of inventory reconciliation is the ability to accurately measure tank inputs. If input meters are not used, the underground storage tank owner would be precluded from using this monitoring alternative.

(OAL 104A, 104B)

The basis for Subsection (C) is the same as that specified for Subsection 2641(c)(5)(C). Commenters indicated that monitoring requirements are expensive and questioned the need for underground tank testing since this monitoring alternative required inventory reconciliation and either vadose zone or ground water monitoring [87, 87g, 102, 102k, 138, and 138c]. Also, a commenter suggested deleting soils testing and either (a)

underground storage tank testing or (b) vadose zone/ground water monitoring while implementing tank testing on a frequency based on age of tank and soil type [138c]. These comments are rejected. A detailed discussion of the need for underground storage tank testing was given in the support for monitoring alternative number 5. Additionally, since this monitoring alternative is a modification of monitoring alternative number 5, the vadose zone or ground water monitoring is imposed to compensate for the less restrictive allowable inventory reconciliation error and not as a substitute for underground storage tank testing.

(OAL 47)

A commenter said the inventory variance will force reevaluation of inventory data, and is unrealistic for large systems which can have daily variances of up to 5,000 gallons [81]. This comment is rejected. The allowable variance applies to each tank and not to all of a company's tanks collectively. Therefore, a 5,000 gallon per day variance is out of the question for most tanks which range in capacity from 10,000 to 20,000 gallons.

The basis for Subsection (D) is the same as for Subsection 2641(c)(5)(D). A commenter requested the addition of suction pipeline monitoring [87g]. This comment was on a prior draft, and the final regulations were modified to include the suggestion. Another commenter indicated a possible reference error to Subsection (5)(d) [138]. The regulations were changed to make reference to Subsection (5)(D).

Subsection (E) provides a methodology and frequency for vadose zone monitoring, if used. Vadose zone monitoring is a backup to the less restrictive (when compared to alternative number 5) allowable inventory reconciliation error. The frequency is

established semi-annually at a minimum such that leaks that may be masked by inventory reconciliation errors do not go undetected for long periods of time.

Subsection (F) provides a methodology and frequency for ground water monitoring, if used. The same basis as described for Subsection(E) above is applicable here. A commenter questioned the need for ground water wells for pipelines since pipelines are monitored by pressure loss detectors [87]. This comment is rejected. Pressure loss detectors and suction pipeline monitoring have a lower level of detection of leaks. The major intent of these monitoring systems is to immediately detect large leaks before a significant amount of hazardous substance is released. In monitoring alternative number 5, the allowable inventory variation and yearly testing provides an adequate degree of leak detection; but for monitoring alternative number 6 with larger allowable inventory variation, an additional form of monitoring is needed.

A commenter believes that the number of ground water wells that are required are more than needed [116c]. This comment is rejected. The number of wells are the same as for monitoring alternative number 2. In both alternatives, the ground water monitoring is for backup monitoring and, therefore, the justification given in monitoring alternative number 2 is appropriate for this monitoring alternative.

(OAL 143B)

Commenters had concerns with the last sentence of Subsection (F) [87h, 102k, and 116c]. They wanted the requirement for laboratory analysis changed from "shall" to "may" or the sentence eliminated. These comments are rejected. Since ground water monitoring is a backup monitoring method, it must be capable of providing assurance of non-contaminated conditions. If analysis methods with high detection levels are

allowed, the value of this monitoring is lessened since contamination at low levels could exist without detection. Considering the low frequency of this monitoring and the reliance placed on it, the requirement for best detection limits achievable is not unreasonable.

A commenter requested that this monitoring alternative require only inventory reconciliation and vapor monitoring in the vadose zone [115]. This comment is rejected. Pipeline monitoring and underground storage tank testing as described previously are integral parts of this monitoring alternative. The elimination of either of these methods would significantly reduce the effectiveness of this monitoring alternative.

(OAL 66A)

Commenters requested that inventory reconciliation be eliminated. [91c, 102, 102k]. This comment is rejected. Inventory reconciliation, even with its shortcomings, provides an immediate detection of large underground storage tank leaks and is relatively effective for medium-sized leaks. Given the infrequent monitoring of the backup vadose zone or ground water, the elimination of inventory reconciliation would significantly reduce the effectiveness of this monitoring alternative. If owners want to utilize a monitoring alternative without inventory reconciliation, they may select monitoring alternative numbers 1 through 4 or number 7.

(OAL 35A, 80)

Commenters indicated that monitoring alternative number 6 was basically monitoring alternative number 5 with backup monitoring methods which add to the cost and that monitoring alternative numbers 2, 3 or 4 are easier to implement or less stringent



[71b.102k]. This comment is rejected. The difference between monitoring alternative numbers 5 and 6 is that 6 provides a larger allowable inventory reconciliation error and for that reason includes additional backup monitoring methods. The regulations provide several monitoring alternatives which are suitable for motor vehicle fuel storage tanks and other hazardous substances. Inevitably, some of the alternatives will be more burdensome than others, but a tank owner may not be able to qualify for the most "desirable" alternative. It is not necessary that more than one alternative be available to a particular tank owner.

Monitoring alternative number 7 [Subsection 2641(c)(7)] was developed to provide a practical alternative to low throughput, small underground storage tanks usually owned by individuals for their own use or utility underground storage tanks for stand-by fuel sources. The concept behind this monitoring alternative is:

(a) that the liquid level in the underground storage tank should not fluctuate between inputs and withdrawals except as indicative of a release; (b) that inputs and withdrawals are infrequent so as not to make monitoring before and after each input or withdrawal an impediment to this monitoring alternative; and (c) that the liquid level could be determined very precisely.

#### QAL 66B)

A commenter recommended that the requirement for no inputs or withdrawals during the test period be deleted [91c]. This comment is rejected. As explained above, this would introduce another area for errors and render this alternative unreliable.

#### (QAL 93A, 115A, 115B, 144D

Commenters indicated that the terms "small underground storage tank" and "limited

input and withdrawal" were not defined [91c, 98b, 100D, 117c]. Another commenter indicated this alternative should be limited to tanks under 1001 gallons [116c]. These comments are rejected. The intent of these terms is to provide an indication as to the type of underground storage tank and operation to which this monitoring alternative could apply. The actual performance standard defining "small underground storage tank" is the ability to monitor the liquid level to plus or minus 5 gallons. Tanks in the range of 1000 gallons would qualify if they can be measured within 5 gallons which is about the limit of accuracy for this size of tank. The term "limited input and withdrawal" is based on the premise that monitoring before and after each input and withdrawal would not be practical if inputs and withdrawals are too closely spaced.

Subsection (B)(i) assures that no unauthorized inputs or withdrawals occur during the period between measurements, otherwise there would be no way to determine if level fluctuations were an indication of a leak.

Subsection (B) (ii) provides the methodology needed to implement this monitoring. The 7-day maximum period is mandated so that the underground storage tank is monitored on a relatively frequent basis. Since liquid level measurements are the key to accurate monitoring, the same person should take these measurements at the beginning and end of each period.

Commenters requested that the requirement for the same person doing the measurements be eliminated [98 and 168]. The text has been modified to state that this is only required if possible.

(OAL 160D)

A commenter requested that a provision be added that if a different person conducts a test, he must certify that the beginning and ending calculations have been reviewed by original tester [168]. This comment is rejected. It would impose an unnecessary constraint without providing any real benefit. The original tester may not be available to make the review and even if he were, we fail to see how a review of the measurements, which is after the fact, will help with the accuracy to which the measurements were made. It is a good idea to have calculations checked but this does not need to be done by the person that made the original measurement.

(OAL 65A, 120A, 144F)

Commenters requested that the maximum 5-day period between gauge readings be extended to 7 days [91c, 116c]. One commenter recommended that monthly gauge readings follow initial weekly gauge readings [98b]. Staff concurs with the need for a reasonable length of time between gaugings, but does not want to allow too great an interval between monitoring events. Accordingly, Table 4.1 specified weekly gauging. The text of Section 2641, however, was inadvertently changed to require gauging every five days. Subsection 2641(c)(7)(B)(ii) of the regulations has been corrected to read "7 days" and thus correspond with Table 4.1. The request for monthly gauge reading intervals is rejected. The failure to monitor the underground storage tank on a frequent basis could allow a leak to go undetected for long periods.

(OAL 42)

A commenter indicated that continuous periods of monitoring were an operational problem [80, 80c]. A commenter indicated that no inputs during the period was

impossible to achieve [91c]. These comments are rejected. If this alternative is being used, tank operations must be analyzed to accommodate the constraints of the monitoring program. Once a period without inputs or withdrawals ends and the liquid level is measured, inputs or withdrawals could be made over a short time period. At the end of this period, a liquid level is taken and a new no input or withdrawal period begins. This monitoring is intended for tanks that do not have frequent inputs and withdrawals. If this alternative is not practical, for a particular tank, then the owner will have to use a different monitoring alternative.

(OAL 144G)

One commenter recommended that readings be taken for a standby generator after one test and before the next test, the following week [116c]. This procedure is in accordance with Subsection (B) (ii).

Subsection (B)(iii) requires underground storage tank testing on a yearly basis to provide a check on the liquid level measurements. It is not appropriate to rely on just one form of monitoring since most have some errors associated with them.

(OAL 66C, 120B, 123, 144E, 151C)

Commenters suggested either elimination of tank testing or testing underground storage tanks on a less frequent basis, except for high-risk tanks or when a leak is suspected as a result of gauging [91, 91b, 98B, 91c, 98d, 98e, and 116c]. These comments are rejected. As stated above, the underground storage tank testing requirement provides a periodic check on the liquid level monitoring. All tanks are subject to leaking regardless of tank age or cathodic protection. To reduce the frequency below that prescribed in Subsection (B)(iii) might allow a leak to continue undetected for too long a period of time.

Subsection (B)(iv) provides the performance standard to evaluate the effectiveness of liquid level measurements. Since the liquid level can be measured to plus or minus 5 gallons, it is reasonable to set the performance standard at that value.

(OAL 70)

A commenter identified an inconsistency between the text and Table 4.1 (permissible variation of 5 gallons in the text and 50 gallons in the table) [102K]. The table value was modified to reflect the text. Commenters indicated an error in the text regarding "authorized release"[102k and 168b]. The text was modified to read "unauthorized release".

(OAL 65B)

A commenter suggested that withdrawals be either metered or based on fuel consumption per engine operation time as determined by the operator or manufacturer, and that the volume determined be subtracted in order to evaluate fluctuations [91c]. This comment is rejected. These methods would provide significantly less accurate values than the plus or minus 5 gallons measuring requirement. This commenter is concerned about stand-by generator usage which might occur causing a withdrawal without a prior measurement. Infrequent incidences such as this can be tolerated so long as a new period of no inputs and withdrawals is started by taking a liquid measurement shortly after the withdrawal period ceases.

(OAL 153A)

A commenter requested that the requirement for measurement accuracy of underground storage tanks monitored using this alternative is changed from "one percent or five gallons, whichever is less" to "five gallons" to indicate an unauthorized release [160c]. This comment is rejected. As previously stated, Section 2641 (c)(7)(A) requires that the operator be able to read the "... liquid level in the underground storage tank ... to an accuracy of 5 gallons or less when the liquid level in the underground storage tank is such that a unit change in underground storage tank contents causes the smallest liquid level variation." As such, the midpoint of the underground storage tank is the critical location for determining the required accuracy. For a typical 100-gallon underground storage tank ( the size of concern to the commenter) with a diameter of 3.00 feet and a length of 4.50 feet, a 0.125 inch differential reading on the stick gauge would represent 1.05 gallons or approximately one percent as required in Section 2641 (c)(7)(B)(iv).

Underground storage monitoring alternative number 8 [Section 2641(c)(8)] was

established to provide an incentive for underground storage tank owners to eliminate or replace underground storage tanks and for small businesses who commented on the costs of the other monitoring alternatives and to governmental agencies who have severe budget problems if required to implement capital improvements without adequate lead time. It was intended that this monitoring alternative could be implemented with little or no capital costs.

(OAL 53B, 142A, 142B, 146A)

Commenters suggested that this monitoring alternative should be made available to all underground storage tank owners [85, 87, 104b, 113, 113d, 113e, 139, 140]. Also, commenters suggested that any owners should be able to use this monitoring alternative for the 3-year period and then implement one of the 7 other monitoring alternatives [87g, 87h, 104b, 113, 113d, 113e, 125c]. This second option is only available to small businesses as the proposed regulations are drafted. These comments are rejected. The State Board approved of this monitoring alternative knowing that it would not provide the minimum level of leak detection that the other monitoring alternatives provide. However, the State Board was willing to accept this lower level of leak detection for a limited number of underground storage tanks because of the financial hardship that immediate implementation of one of the other monitoring alternatives would cause small businesses. There is no basis for extending this to all underground storage tank owners thereby significantly increasing the risk to the environment. In addition, the elimination of single-containment tanks within 3 years would provide better long-term environmental protection than the continued monitoring of these underground storage tanks. Therefore, allowing all underground storage tanks owners the option of using this monitoring alternative if they commit to eliminate their underground storage tank in three years is justified; but it is not

justified if, after 3 years, the single-walled underground storage tank will still exist since even the monitoring required in alternatives 1 through 7 do not provide the protection to the environment that a double walled containment underground storage tank would provide.

(OAL 53A, 60B, 81, 82A, 146C, 152B, 152C)

Commenters agreed that the concept of this monitoring alternative is appropriate, but that the 3-year period should be extended due to the costs involved and some commenters suggested a 5- to 7-year period [71b, 90c, 90d, 90e, 90f, 100d, 100e, 102, 102k, 102l]. Another commenter suggested it be made a permanent alternative [85]. These comments are rejected. The State Board selected the 3-year period as being reasonable for a tank owner to plan and accumulate the funds to implement one of the other alternatives or eliminate the underground storage tank. Extending this period or making this monitoring alternative permanent as proposed by the commenters would subject the environment to many more undetected releases, because this monitoring alternative does not provide the minimum level of leak detection that the other monitoring alternatives do.

(OAL 60D, 60E, 151B)

A commenter recommended that the State Board provide an economic incentive for underground storage tank owners to replace their underground storage tanks and to provide financial assistance for this work [102]. Another commenter recommended extending the interim time for this alternative (see above response), as well as implementing a phased monitoring scheme utilizing interim standards to provide an economic incentive for replacement of tanks [90e, 90f]. These comments are rejected. This monitoring alternative provides the economic incentive since it requires the



underground storage tank owner could utilize the money that would have been spent to install a monitoring system for underground storage tank replacement. The State Board does not have any means to provide financial assistance for underground storage tank replacement. The phased interim standards would include inventory reconciliation with no variance standards, pipeline leak detectors and tank testing initially. This is unacceptable, because without the variance standards for inventory reconciliation, there is no backup monitoring system as is contained in monitoring alternative number 8.

(OAL 20A)

One commenter recommended that the draft regulations be amended to require the board to hold a public hearing one year after the effective date of the regulations to consider any necessary changes [14c]. Response: This comment is rejected. The Board at its own discretion may hold a public hearing for the purpose of reviewing the regulations after they have been adopted or the public may petition the Board to hold a public hearing on the regulations. Therefore, it is not necessary or appropriate to lock the Board into a future hearing date in the regulations.

(OAL 3A, 135)

A commenter suggested that the small business definition is too broad and includes many businesses the legislature didn't wish to provide special attention to [159, 159b]. This comment is rejected. The definition used in 2641(c)(B) was developed by the legislature with the intention of identifying businesses which were deserving of relief from certain aspects of administrative regulatory requirements. Since the intent is the same (i.e., this monitoring alternative is only for those businesses which would suffer a financial hardship if required to implement one of the other 7 monitoring

alternatives immediately), the use of the definition is justified.

(OAL 93B)

A commenter questioned whether the local agencies would have the expertise to verify the availability of funds for closing a tank or for implementing one of the first 7 monitoring alternatives, as required in Subsection (8)(A)(i) [117C]. This comment is rejected. The local agencies have the ability to hire experts, if needed, to implement this permit program and to recover the cost from the permit fees.

(OAL 93C)

A commenter suggested that Subsection (8)(A)(ii) requires that the local agency enter into a contract with the underground storage tank owner to assure closure of the underground storage tank after the 3-year period and that this is not provided for in the statute [117c]. This comment is rejected. This subsection does not require a contract between the underground storage tank owner and the local agency to assure closure. The local agency has sufficient authority to require closure at the end of the 3-year period since the permit to operate the underground storage tank would have expired and the local agency could take legal action against a underground storage tank owner if he continued to operate this underground storage tank after the permit had expired.

A commenter suggested that the proposed regulations should provide for a temporary alternative which should be implemented by underground storage tank owners who were proposing to close their underground storage tanks in the short-term [34]. This monitoring alternative was developed in response, in part, to this comment.

A commenter recommended that the State Board enter into a memorandum of understanding with the U.S. Air Force for the demonstration required in Subsection (8)(iii) [166]. This comment is rejected. The State Board does not have the authority to implement these regulations. According to the statute, the implementation rests with the local agencies.

A commenter requested that public utilities be included in the definition of governmental agencies in Subsection (8)(iii) [140c]. This comment is rejected. Public utilities are not subject to the same funding constraints as governmental agencies and, therefore, should not be allowed to delay implementation of the other monitoring alternatives.

Underground storage tank testing is one of the monitoring methods required in this alternative because it provides a reasonable reliable indication of the containment ability of the underground storage tank at a small cost. The cost for an underground storage tank test is about \$500, except that the first test may be more expensive due to the necessity to isolate pipelines.

Inventory reconciliation or underground storage tank gauging are the other methods required since these methods are operational and normally do not require any additional facilities. The allowable inventory reconciliation error equal to that required in monitoring alternative number 6 was selected because it would require less operational skill and care than that required in monitoring alternative number 5. As was discussed in the factual basis for monitoring alternative numbers 5 and 6, achieving the allowable inventory reconciliation errors of monitoring alternative number 5 could involve taking into account factors such as temperature variation of

the stored substance and underground storage tank calibration. To do this could involve capital costs which would be inconsistent with the intent of this monitoring alternative.

(OAL 60C, 82B)

Commenters recommended that the allowable inventory reconciliation error be omitted, but still require the underground storage tank owner to perform the inventory reconciliation procedure [71b, 90, 90c, 90e, 102, 102k]. This comment is rejected. Deleting the allowable inventory reconciliation error figure would allow the underground storage tank owner to evaluate the results of inventory reconciliation without any standard to judge against. This would result in inconsistencies in the review of this data and detection of leaks.

(OAL 3B)

A commenter suggested adopting a sunset, or phasing out of inventory reconciliation as a means of monitoring underground tanks. [159c]

This comment is rejected: The Board does not have authority to delete the monitoring alternative specifying inventory reconciliation as prescribed in the statute. Furthermore, the alternatives that use inventory reconciliation in conjunction with other monitoring methods provide adequate protection against leaks. Inventory reconciliation may be ineffective in detecting small leaks, but it is reliable in detecting a major leak, so it is useful in the regulations in that regard.

Since the intent of the statute and the proposed regulations is to prevent the contamination of ground water, it is essential that ground water monitoring not be utilized as a primary leak detection method unless no other monitoring method is feasible (monitoring alternative number 4 is the only monitoring alternative that allows ground water monitoring as a primary monitoring method, and it provides specific conditions for its use). This is because, once ground water is contaminated, it is very virtually impossible to cleanup completely or to totally contain. This is not to preclude the use of ground water monitoring as a backup to other primary leak detection monitoring methods since this would provide assurance that the other monitoring methods are functioning properly and would, at least, detect the contamination of ground water at the earliest possible time if the other monitoring methods fail to detect a release. For these reasons, the local agencies must evaluate the proposed monitoring alternative according to Subsection (d)(1).

In areas where the ground water with beneficial uses is being recharged from the ground surface, it is even more critical for the monitoring alternative selected to include a form of monitoring other than ground water monitoring as the primary monitoring method. This is because any water that is on the ground surface and, therefore, any hazardous substances released from the underground storage tank, has more of a tendency to migrate to the ground water than in areas where surface water does not recharge ground water. Subsection (d)(2) provides for this requirement.

In the areas described above, the local agencies are specifically authorized to require ground water monitoring if they believe it to be necessary to assure protection of the ground water. The local agencies are also given latitude to make decisions as to the

number and location of monitoring wells. This was done for two reasons: first, this form of monitoring is optional, and second, there was a deliberate attempt to allow the local agencies to consider site-specific situations such as utilizing one ground water monitoring well to monitor more than one facility. It is believed that by providing this latitude it is more likely that the local agencies will require this monitoring since they can keep the costs of compliance to a minimum.

A commenter questioned the intent of Subsection (d)(2) which requires monitoring other than ground water monitoring [168]. This comment is rejected. This statement is quite clear. If one evaluates the monitoring alternatives, it is determined that all of the monitoring alternatives except monitoring alternative number 4 include a monitoring method other than ground water monitoring on a frequency of at least monthly.

Commenters recommended that Subsection (d) be eliminated completely [87h, 102]. This comment is rejected. The commenters did not provide a reason for deleting this requirement except that it would require additional monitoring methods in certain situations with little benefit. As described above, this subsection establishes criteria for evaluating whether or not the proposed monitoring alternative will achieve the monitoring objectives. In addition, it alerts the local agencies to specific situations which could pose a higher risk of ground water contamination and clearly states what monitoring methods cannot be used in these situations.

Commenters were concerned that Subsection (d) conflicted with Subsection 2640(b) [87h, 183b]. These comments are rejected. As stated in the response to the previous

comment, Subsection (d) provides criteria for evaluating compliance with the monitoring objectives of Subsection 2640(b).

#### General Comments

A commenter requested that public agencies be allowed to monitor their underground storage tanks utilizing soils testing, vadose zone, or ground water monitoring, underground storage tank testing, inventory reconciliation, and cathodic protection.

[91] The proposed regulations have been modified to provide for monitoring alternatives, some of which would allow the implementation of the monitoring methods requested by this commenter.

#### (QAL 40A, 40B)

A commenter requested that the requirement for continuous leak detection monitoring which is contained in Section 25292(b)(3) of the Health and Safety Code be included in the regulations [78, 78c]. In addition the commenter recommended that the regulations include a separate section which describes the criteria for continuous leak detection and alarm systems [78c]. These comments are rejected. The commenter is specifically referring to the requirements of Chapter 1584 of the Statutes of 1984 [Assembly Bill 3781; Sher, 1984] which are not applicable to the proposed regulations, because the regulations were proposed pursuant to the original legislation, Chapter 1046 of the Statutes of 1983 [Assembly Bill 1362; Sher, 1983]. Sections 2646 and 2647 already provide performance criteria for the methods to be used for vadose zone and ground water monitoring. Accordingly, it is not necessary to provide specific requirements for one monitoring technique when the proposed regulations do not

prohibit its use.

Commenters requested that they be able to monitor their underground storage tanks using only inventory reconciliation. [49, 80, 87, 98, 105, 119, 131, 138, 194] This comment is rejected. Inventory reconciliation by itself would not provide a degree of leak detection reliability that was acceptable to the State Board considering the potential error associated with this method as described in the factual basis for monitoring alternative numbers 5 and 6. These comments were mostly on the first draft of the proposed regulations which required numerous monitoring methods. The proposed regulations now contain monitoring alternatives. Monitoring alternative number 5 requires inventory reconciliation, pipeline leak detectors, and underground storage tank testing. This is as close to the recommendation as possible considering the objective to provide reliable leak detection.

A commenter requested that certain methods of monitoring be exempted for small underground storage tanks and that only underground storage tank testing and inventory reconciliation be required. [49] This comment was based on the first draft of the proposed regulations which required the implementation of numerous monitoring methods. The proposed regulations now provide for monitoring alternatives, one of which (monitoring alternative number 7) is specifically for small underground storage tanks and provides for the methods described by the commenter.

A commenter requested that a monitoring alternative which allowed underground storage tank testing and inventory reconciliation be allowed for 18 months. [87] This is provided for in monitoring alternative number 8.



A commenter questioned the need to test empty underground storage tanks. [98] This comment is rejected. An underground storage tank owner has the option of applying for a temporary closure permit if the underground storage tank is empty. If this is granted by the local agency, the monitoring may be reduced or eliminated.

A commenter requested that they be allowed to use vadose zone monitoring alone. [115] This comment is rejected. The proposed regulations now allow for the use of vadose zone monitoring along with soils analysis and underground storage tank testing (monitoring alternative number 3) in specific situations. Vadose zone testing by itself would not provide the degree of reliable leak detection deemed necessary by the State Board due to the factors discussed in the factual basis for monitoring alternative number 3.

A commenter suggested that leak detection monitoring begin with inventory reconciliation and that other forms of monitoring only be required if the inventory reconciliation indicates a leak [185]. This comment is rejected. As described in the factual basis for monitoring alternative numbers 5 and 6, inventory reconciliation is not accurate enough to detect small leaks due to the inaccuracies in the metering, measuring, and calculating the amount of substance being stored and accounting for possible losses due to temperature and volatilization. Given these inaccuracies, a leak could occur from an underground storage tank and not be detected and there would be no backup monitoring in-place. This would lead to a false sense of security on the containment ability of the underground storage tank.

Commenters suggested that requiring deep ground water monitoring would allow for adverse impacts to ground water before a leak was detected [138, 160]. This comment is rejected. None of the monitoring alternatives require only deep ground water monitoring. In all cases, deep ground water monitoring is required as a backup to other forms of monitoring which are intended to provide primary leak detection monitoring.

A commenter indicated that they did not believe that continuous monitoring and ground water monitoring were necessary [78b]. This comment is rejected. Where ground water monitoring is required as a backup to other forms of monitoring, it is because the other form of monitoring does not provide the minimum level of leak detection monitoring needed to meet the objectives of the statute. This comment was based on the first draft of the proposed regulations. The proposed regulations have been modified to provide monitoring alternatives, some of which do not require ground water monitoring.

Commenters recommended that public agencies be allowed to implement a monitoring alternative that consisted only of annual underground storage tank testing [46, 128]. This comment is rejected. Section 25292(b) of the Health and Safety Code [formerly Section 25284.1(b)] requires monitoring on a monthly or more frequent basis.

Furthermore, yearly underground storage tank testing by itself is not capable of providing reliable leak detection because it does not provide any leak detection monitoring during the period between tests and, the one-year period is much too long a period to go without any leak detection.

A commenter suggested that monitoring methods be required sequentially rather than simultaneously [98]. This comment is rejected. This comment was based on the first draft of the proposed regulations which have been modified to provide monitoring alternatives rather than all monitoring methods. However, there is no provision for sequential monitoring since the intent of monitoring is to only require the minimum level of monitoring necessary to provide reliable leak detection monitoring. If monitoring methods are employed which cannot detect small leaks, there will be no trigger mechanism to implement the backup monitoring methods to detect these leaks.

A commenter suggested that the exemption provisions for each of the monitoring methods in the first draft of the proposed regulations be replaced with a requirement for a positive demonstration of the effectiveness of the leak detection method [98]. The exemption provisions have been deleted from the proposed regulations, and monitoring alternatives have been substituted.

A commenter suggested that inventory reconciliation monitoring utilize trend analysis rather than allowable errors [102]. This comment is rejected. Trends are much more difficult to evaluate and require reliance for this evaluation to be placed on the underground storage tank owner without specific evaluation procedures. Different size underground storage tanks and varying throughputs could result in an almost unlimited amount of possible trends. Given the different trends that could exist, it would be impossible to develop an evaluation procedure which would account for every possibility.

(OAL 112E)

A commenter requested that inventory reconciliation not be required for underground storage tanks with a capacity of less than 1,100 gallons. [109] This comment was based on the first draft of the proposed regulations, and the proposed regulations have been modified to provide monitoring alternatives, some of which do not include inventory reconciliation.

A commenter indicated that pipeline leak detectors are cost-effective and could be a substitute for other forms of monitoring [138b]. This comment is rejected. Pipeline leak detectors are a cost effective method to detect large leaks in pipelines but they are ineffective in monitoring leaks from the tank since they do not monitor the tank.

A commenter suggested that the proposed regulations put a greater emphasis on prevention rather than detection [91b]. This comment is rejected. The statute requires effective leak detection monitoring for all existing underground storage tanks rather than additional construction methods to prevent leaks such as secondary containment as is required for new underground storage tanks. However, monitoring alternative number 8 provides an incentive to replace existing primary containment facilities with secondary containment facilities which provide much better leak prevention. Underground storage tank owners have the option of replacing their underground storage tanks with secondary containment facilities at any time.

A commenter recommended that either the State Board, Regional Board, Army Corps of Engineers or water utilities be responsible for supervision of the installation of ground water monitoring wells. [63] This comment is rejected. Section 25292 of the

Health and Safety Code [formerly Section 252894.1] provides that the local agencies are responsible for approving the well construction details pursuant to the proposed regulations. The underground storage tank owner is responsible for the actual well installation.

Commenters suggested that cathodic protection, underground storage tank testing, and inventory reconciliation would provide adequate leak detection monitoring without the need for ground water wells. [25b, 36] This comment was based on the first draft of the proposed regulations which have been modified to provide monitoring alternatives. Monitoring alternative number 5 responds to this comment.

A commenter recommended that a monitoring alternative be developed which included inventory reconciliation, pipeline leak detectors, vadose or ground water monitoring, and soils analysis. [102k] This comment was based on the first draft of the proposed regulations which have been modified to include monitoring alternatives in response to this comment.

A commenter recommended that an underground storage tank owner have the ability to select any one of the monitoring alternatives and add or delete monitoring methods to develop a new monitoring alternative which could then be reviewed by the local agency. [102k] This comment is rejected. The monitoring alternatives contained in the proposed regulations include numerous combinations of monitoring methods that can be used in combination to provide effective monitoring. We have reviewed other combinations of monitoring methods and have determined that they would not provide the minimum level of reliable leak detection that is needed to achieve the objective

of the statute. The proposed regulations provide sufficient flexibility to add monitoring methods to existing monitoring alternatives in order to develop new monitoring alternatives.

(OAL 49A)

Commenters suggested that inventory reconciliation be allowed as the sole monitoring method for underground storage tanks with a capacity of less than 2,000 or 4,000 gallons and an annual throughput of less than 20,000 gallons. [83b, 212] This comment is rejected. As was discussed in the factual basis for monitoring alternative numbers 5 and 6, inventory reconciliation alone does not provide a reliable degree of leak detection. This is because of the inaccuracies of metering, measuring the liquid level in the underground storage tank, and converting the level to a volume.

(OAL 150B)

A commenter questioned which monitoring alternatives would be available for an underground storage tank which contains a non volatile substance which is not a motor vehicle fuel ~~where~~ where ground water is ~~is~~ less than 100 feet deep and the ground water ~~has~~ ~~is~~ ~~is~~ ~~is~~ beneficial uses. [116d] The commenter believes that the only ~~monitoring~~ monitoring alternative ~~is~~ available is number 1, or to request ~~an~~ exemption. This comment is rejected. Review of the monitoring alternatives indicates that monitoring alternative numbers 1, 2, 3, ~~4~~ and 7 would be available.

A commenter requested that corrosion protection be required for all existing underground storage tanks. [91b] This comment is rejected. Section 25292 of the

Health and Safety Code [formerly Section 25284.1] requires monitoring of existing underground storage tanks. Corrosion protection is a construction method, and authority was not given to the State Board in the statute to require construction standards for existing underground storage tanks.

(OAL 127B)

One commenter indicated that the handling of hexane requires many safety considerations which will preclude complete compliance with any of the proposed alternative methods of monitoring, thus necessitating a change in the monitoring requirements [123c].

Response: This comment is rejected. It is not possible for the board to evaluate the point raised by this commenter, since no specifics were included. The Board is not aware of any difficulty for hexane users in being able to comply with at least one of the monitoring alternatives.

(OAL 127A)

One commenter indicated that the monitoring methods in some cases exceed currently available "state of the art" technology, and that time is needed for research and development [123c].

Response: This comment is rejected. The eight monitoring alternatives presented in Article 4 contain different combinations of the following monitoring methods: visual monitoring, underground storage tank testing, inventory reconciliation, soils testing, vadose zone monitoring, and ground water monitoring. None of the operational

requirements specified in the regulations exceed currently available "state of the art technology". Visual monitoring of the underground storage tank, obviously, does not require any advanced technology which is not currently available. Underground storage tank testing requirements parallel those required for the "precision test" in National Fire Protection Association (NFPA) Pamphlet 329. Accordingly, the proposed regulations are not requiring testing procedures which exceed standards currently recommended by other organizations. The procedures and accuracy [trigger] levels for inventory reconciliation, as discussed for Alternatives 5 and 6, do not specify accuracies for dipstick gaging which exceed the 0.25 inch accuracy of normal stick reading. In addition, "state of the art" devices are available which can determine the fluid level in the tank to within 0.10 inches. Soils testing does not require any methodology beyond that currently available since the testing procedures refer to only existing methods such as "appropriate EPA methods". Vadose zone monitoring includes both vapor monitoring and soil moisture monitoring, and either method may be used to satisfy this monitoring requirement. Although vapor monitoring devices are currently in developmental stages for some volatile organic chemicals, for motor vehicle fuels, devices are available which can determine the presence of the motor vehicle fuel under field conditions. Soil moisture monitoring provides a method with years of experience in the agricultural industry and its application relies less on the development of new technology, but rather the application of existing technology to a new situation. Finally, ground water monitoring does not require any advanced technology for monitoring as all of the construction standards are (or should be) used in well construction and the recommended sampling techniques are specified in current EPA standards.



A commenter indicated that monitoring alternative numbers 7 and 8 are another example of the application of common sense. No response is needed.

(OAL 56)

Commenters indicated that underground storage tank testing on a yearly frequency ~~was~~ is not justified. [87, 87h, 163, 167] This comment is rejected. This comment was based on the first draft of the proposed regulations which required underground storage tank testing for all underground storage tanks yearly beginning 10 to 14 years after tank installation. The monitoring alternatives specified in the proposed regulations ~~was~~, as modified, have been changed to require underground storage tank testing only when it can be justified and at a frequency of between monthly and yearly depending on the monitoring alternative selected.

(OAL 69, 150A, 152A)

One commenter indicated that the practical effect of the monitoring alternatives in the regulations is to provide no alternatives at all [102k, 102l].

Response: This comment is rejected. The State Board's responsibility in developing the proposed regulations is to interpret the Legislature's intent in the enabling legislation and provide standards which must be met to satisfy that intent. The State Board's interpretation is that conformance with these requirements provides the minimum protection necessary to protect ground water. The proposed regulations are within the scope of the Health and Safety Code Division 20, Chapter 6.7. The owner has the choice of selecting a monitoring alternative which best fits his needs and is acceptable to the local agency. Some alternatives may not be suitable in certain

situations, but in most cases the owner should have a choice of more than one alternative. The commenter ruled out monitoring alternative 1 by saying it is only available to a small number of users. To the contrary, tank testing is available to most tank owners because it is not affected by soil or groundwater conditions. The commenter indicates that alternative number 2 is a viable and practical alternative. The commenter ruled out monitoring alternative 6 by saying other alternatives are easier to implement, but then proceeded to explain that some of these other alternatives had limited use. The commenter then said alternative 2 is the only viable alternative. The regulations provide several monitoring alternatives which are suitable for motor vehicle fuel storage tanks, and other hazardous substances. Inevitably some of the alternatives will be more burdensome than others, but a tank owner may be unable to qualify for the most "desirable" alternative. It is not necessary that more than one alternative be available to a particular tank owner.

(QAL 44A)

A commenter requested that Table 4.1 indicate the requirement for ground water monitoring as described in Subsections ~~244Y~~ 2641(b) and (d). [80c] This comment is rejected. The table is not intended to duplicate the text. Additionally, Subsections 2641(b) and (d) do not require ground water monitoring for all ground water at depths less than 100 feet. In fact, 2641(d) is explicit in stating that, whenever possible, the primary method of monitoring should be a method other than ground water monitoring.

A commenter proposed that the underground storage tank testing requirement be postponed until completion of an EPA study on testing methods. [137] This comment

is rejected. The tests used today provide some degree of reliability, and their use should not be eliminated. If the EPA study indicates problems with the existing procedures, these proposed regulations could be amended after the EPA study is complete.

(OAL 146D)

A commenter proposed that the Board adopt a "phase in" approach for implementing the regulations with respect to the "most hazardous substances" first (i.e. organic solvents) and then for the "less hazardous substances." such as fuel oil [162b]. This comment is rejected. Sections 25281(d), 25291, and 25292 of the Health and Safety Code [formerly Sections 25280(c) 25284, and 25284.1, respectively] do not make any distinction between the degree of hazard of a substance and the date for implementing regulatory requirements. Accordingly, it is beyond the Board's statutory authority to "phase in" the construction and monitoring requirements based solely on the degree of hazard associated with the stored substance.

Cost estimates for Alternatives 1 through 8 of the December 28, 1984 text of the proposed regulations cannot be directly compared with those for Alternatives 1 through 5 of the August 23, 1984 text because the requirements for each alternative have been changed. These changes were made in response to public comments in order to provide more cost-effective monitoring alternatives and to provide options in the types of monitoring to be implemented at each facility. Many of the persons commenting on the August 23, 1984 fiscal impact statement felt that the costs for implementing the various alternatives in those regulations were under estimated. The new initial cost estimates for situations similar to those in Alternatives 2 and 3 of

the August 23, 1984 draft are higher than originally estimated as shown in Table 4.8:  
in the Fiscal Impact Statement.

(OAL 136)

A commenter felt that the drilling costs used in the original fiscal impact statement  
were out of line with driller's current fee schedules [158]. As discussed above,  
modifications were made to the final cost estimates in response to the comments  
received.

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## **Section 2642. Visual Monitoring**

Health and Safety Code Section 25284.1 (formerly Section 25292) specifies that visual inspection of underground storage tanks shall be instituted where ever practical.

### **Specific Purpose**

The specific purpose of Subsection (a) is to implement Section 25292 by specifying that visual monitoring of all visible portions of the exterior surfaces of underground storage tanks must be conducted wherever such monitoring would be effective in detecting unauthorized discharges, is physically possible, and would not require the use of extraordinary protective equipment to protect the inspector from physical harm.

The specific purpose of Subsection (b) is to provide for exemptions to the requirement for visual monitoring for those exterior surfaces of underground storage tanks where visual inspection is impossible, would be ineffective, or where visual inspection would put the inspector in danger.

The specific purpose of Subsection (c) is to specify the components that must be included in a visual inspection programs to ensure timely leak detection.

The specific purpose of Subsection (d) is to specify the actions the owner must take if, as a result of visual inspection, a leak is suspected.

The specific purpose of Subsection (e) is to specify that concealed portions of a partially exposed underground storage tank must be monitored using an alternative in

Section 2641.

Factual Basis

Visual inspection provides the most direct and reliable method of detecting unauthorized discharges from underground storage tanks. Other commonly used methods of detection are indirect and require interpretation of some measured parameter. Whenever interpretation is required, it necessarily follows that misinterpretation or disagreement over interpretation can occur thereby leading to the possibility that unauthorized releases may go undetected. Visual monitoring minimizes the chance that surface or ground water pollution will occur as the result of undetected unauthorized releases.

Subsection (a) is being proposed because portions of underground storage tanks are frequently concealed or are inaccessible while the remaining portions are visible and susceptible to visual monitoring. The proposed regulations make explicit the intent that any portion of an underground storage tank that can be visually monitored within the limits specified in Article 4 must be visually monitored regardless of the additional monitoring required for other concealed portions of the underground storage tank. Thus, the optimum method of monitoring (visual monitoring) will be implemented whenever possible, thereby increasing the overall reliability of the monitoring.

A commenter indicated that Subsection (a) is not clear because it does not indicate whether a manhole cover or if the portion of the underground storage tank above the

highest liquid level are considered exposed surfaces and subject to monitoring. [98].

This comment is rejected. If these portions of the tank can be visually observed they are subject to visual monitoring.

In recognition of the fact that there may be circumstances in which visible portions of an underground tank cannot be effectively monitored visually or in which an owner could not, in good faith, be expected to monitor an underground storage tank visually, provisions for exemptions from visual monitoring have been provided in Subsection (b). Subsection (b)(1) presents conditions which exclude visual monitoring. A surface which cannot be seen cannot be visually monitored. Likewise, a permit should not require visual monitoring in a physically unsafe environment. On the other hand, pursuant to Subsection (b)(3) this type of monitoring may be used if the owner has qualified personnel with the necessary special protective equipment to perform the visual inspection. In the case of Subsection (b)(4) where the facility is not staffed on a daily basis, the owner is not required but may elect to have someone perform the visual inspection when the facility is unstaffed.

Commenters indicated that they should not be exempted from visual monitoring in accordance with Subsection (b) if the condition is not an obstacle to the owner or operator [53, 87, 138, 138b, 139c]. This comment is rejected. The proposed regulations presently allow what the commenters are asking for. As stated above, there are circumstances under which the owner or operator would not have to be exempted from visual monitoring due to Subsection (b).

A commenter recommended that Subsection (b) should read "the owner is exempt from visual monitoring only under the following conditions" [110]. This comment is



rejected. The addition of the word "only" does not materially change the meaning of Subsection (b).

A commenter suggested that Subsection (b) should be deleted and that visual monitoring should just be considered as one of the monitoring alternatives [117]. This comment is rejected. As stated previously, visual monitoring is considered the best method of monitoring and, therefore, it should always be the method selected unless it is ruled out by one of the exemptions. Additionally, this form of monitoring is required in

Section 25292 (b) of the Health and Safety Code (formerly Section 25284.1 (b), whenever practical."

Commenters recommended that Subsection (b)(4) be changed to require visual monitoring only during the normal work week because it is unnecessary and costly to require it 7 days a week. [13, 134]. This comment is rejected. [(Please see response to similar comment for Subsection (c)(3)].

It has been the State Board's experience that the benefits to be derived from a monitoring program can be thwarted because of inadequate design and/or improper response to the discovery of an adverse condition. Therefore, Subsections (c) and (d) contain the minimum required components of a visual monitoring program and the responses that must be taken upon the discovery of suspected unauthorized releases.

Subsection (c) lists the steps necessary to ensure a desired consistency, reliability, accountability, and level of documentation for visually inspecting tanks. The purpose of the written monitoring procedure is to ensure that inspections are performed

properly and at specified intervals by responsible and qualified individuals. The inspections must also be recorded, using a standard format to ensure that the inspections are being performed at the prescribed frequency, to document the details of any leak, and to detect any changes that may indicate a leak.

(OAL 141, 159C)

Commenters contend that Subsection (c) (1) should not apply to flat-bottomed underground storage tanks or other underground storage tanks that rest on a surface, concealing the bottom of the underground storage tank and the surface beneath the underground storage tank. If a leak does occur beneath the underground storage tank, it will flow out along the surface and be immediately visible [98, 104b, 104c, 104d, 130c, 140c, 167]. This comment is rejected because Article 4 includes no secondary containment requirements, an underground storage tank may be resting on a material which will deteriorate when in contact with the substance being contained or a material which is not impervious to the substance being contained. This may include concrete which might be cracked underneath the underground storage tank. In these instances, if an unauthorized release occurs in the concealed area of the underground storage tank, it may continue for a long duration before becoming visible or it may never be detected by visual inspection.

Commenters objected to the requirement in Subsection (c) (4) that this information be reported [53, 87, 87g, 97, 110, 113, 113d, 138, 138b]. The reporting requirement has been deleted from the proposed regulation.

The minimum requirement of daily inspections in Subsection (c) (3) is necessary to be able to detect a leak at its inception. If a leak would not remain visible on the

horizontal surface beneath the underground storage tank for 24 hours due to the properties of the liquid or the physical characteristics of the surface beneath the tank, the inspection frequency must be shortened, accordingly, to ensure detection.

(OAL 31, 137)

Commenters recommended deleting the requirement for daily visual inspections in Subsection (c)(3), because it is excessive, unnecessary and costly [53, 87, 104b, 104c, 112, 113, 113d, 113e, 119, 138, 138b, 139, 139c, 140b, 140c, 156, 165, 167]. Most of the commenters recommended leaving the frequency of the inspections to the discretion of the local agency. This comment is rejected. Sections 25292(b) and 25299.3(a) of the Health and Safety Code [formerly Sections 252841.1(b) and 25288.2(a), respectively] places responsibility with the State Board and not the local agency for developing regulations for visual monitoring. Daily monitoring is considered the ~~maximum~~ minimum acceptable frequency ~~for~~ for visual monitoring in Subsection (c)(3) for more than one reason: First, these underground storage tank do not have containment; therefore, any leak that occurs between inspections may not be contained by the surface beneath the underground storage tank for easy observation. Second, the substance may not be present during the inspection due to the volatility of the hazardous substance or the porosity and slope of the surface beneath the underground storage tank.

If liquid does appear on the exterior of the underground storage tank or on the surface beneath the underground storage tank during an inspection, it is necessary to confirm whether or not an unauthorized release has occurred. Laboratory or field analysis of the liquid should reveal whether or not the liquid is the same as the hazardous substance being stored. If they are the same, then it may be necessary to

test the underground storage tank to find the source of the leak or to determine if the liquid resulted from, perhaps, sloppy tank filling. It may then be necessary to empty the underground storage tank if the underground storage tank test reveal that the underground storage tank is, in fact, leaking.

Commenters objected to the requirement of laboratory analysis in Subsection (d)(1) if the substance is visually identifiable by the owner or operator [138, 139, 140]. This comment is rejected. Subsection (d)(1) allows for "laboratory or field analysis". The permit may specify field analysis to mean visual identification when the substance is detectable by this means of analysis.

A commenter indicated that the meanings of analysis and identify are not clearly differentiated in Subsection (d)(1) [110]. This comment is rejected. The word "identify" does not appear in Subsection (d)(1). "Analysis" is a common term that means the determination of the composition and quantity of a substance.

A commenter indicated that the observation of liquid with regard to Subsection (d)(1) is an indication of an unauthorized release which should be dealt within Article 5, thus making laboratory testing unnecessary [117]. This comment is rejected. This subsection does not require laboratory analysis in all situations. If the visual or field analysis is sufficient to confirm that a release has occurred it is not necessary to perform laboratory analysis.

(OAL 147A)

A commenter stated that it is not clear in Subsections (d)(1) to (3) what should be done and when it should be done [139]. This comment is rejected. As stated in

Subsection (d), the actions to be taken and their timing will be contained in the permit based on site-specific conditions.

Subsection (e) requires that the owner of a partially concealed underground storage tank must implement one of the monitoring alternatives in Subsection 2641. The purpose of this requirement is to ensure that an unauthorized release that might originate from in the concealed portion of the underground storage tank is detected and dealt with according to Article 5.

**Section 2643. Underground Storage Tank Testing**

Health and Safety Code Section 25292 (formerly Section 25284.1) provides that, where visual monitoring of underground storage tanks is not practical alternative methods of monitoring the underground storage tank may be required. Underground storage tank testing is monitoring method which is included in some of the monitoring alternatives specified in Section 2641.

**Specific Purpose**

The specific purpose of Subsection (a) is to specify that all owners of existing underground storage tanks who are required to implement a testing tank program do so as described in Subsections (b) through (g).

The specific purpose of Subsection (b) is to define the level of accuracy required for the underground testing method (at least 0.05 gallons per hour) and those aspects which must be considered during the test in order to achieve the desired level of accuracy.

The specific purpose of Subsection (c) is to describe the procedures for testing pipelines (hydrostatic pressure test) and under what circumstances additional testing is required.

The specific purpose of Subsection (d) is to ensure that those performing underground storage tank tests have the necessary training and that they certify that the test meets the requirements of this section. In addition, this section specifies a listing or

certification procedure for underground storage tank tests.

The specific purpose of Subsection (e) is to detail the information that the underground storage tank owner must provide the local agency following the completion of the leak detection test.

The specific purpose of Subsection (f) is to require that underground storage tanks which lose hazardous substances be repaired or replaced as specified in Articles 6 and 7, respectively.

The specific purpose of Subsection (g) is to require that the tank owner report the results of any additional tests which may have been performed to the local agency within 30 days.

#### Factual Basis

Often the contamination caused by leaking underground storage tanks is not detected for months or even years. Regular testing and inspections of the underground storage tank and piping are ways to ensure that unauthorized releases are prevented or detected early if they should occur. Section 25292 (b)(1) of the Health and Safety Code formerly Section 25284.1 (b)(1) specifies precision testing of the piping systems or underground storage tanks as an alternative monitoring method. Subsection (a) specifies that whenever underground storage tank testing is called for an alternative in Section 2641, that the testing program must implement the requirements of this section.

A commenter urged the State Board to postpone the final requirements for underground storage tank testing until the State Board has had a chance to review the results of a series of tests EPA is conducting to determine the reliability and accuracy of various underground storage tank tests.[86] This comment is rejected. Due to the time constraint in Section 25299.3 of the Health and Safety Code, (formerly Section 25288.2) the State Board is not able to postpone adopting these regulations. However, the State Board may consider changes if the results of this study indicates that they are warranted.

Commenters recommended that, in order for the proposed regulations to be consistent with the statute, Section 2642 in the initial draft of the proposed regulations should be amended to provide for underground storage tank testing as 1 alternative method of monitoring approved by the local agency. [5, 138] A new Section 2641 has been added to the proposed regulations providing underground storage tank testing alone as 1 of a number of monitoring alternatives.

Commenters recommended that underground storage tank testing should not be required by the facility if another monitoring alternative is implemented. [53, 87, 102] The above comments were addressed to the initial draft of the proposed regulations which did not provide monitoring alternatives. The proposed regulations now provide alternatives, some of which do not require tank testing.

One commenter recommended that the word "shall" should be added prior to the word "implement" in Subsection 2643(a). [87g] Subsection (a) has been changed accordingly.

Commenters addressed the technical aspects of Subsection 2642(d) in the initial draft



of the proposed regulations with regard to frequency of underground storage tank testing for underground storage tanks constructed of different materials and employing different methods of corrosion protection. [4a 4b, 22, 39, 78, 91c, 93, 102, 113, 120, 133, 135, 138] ~~THE COMMENTARY IN THE~~ Subsection (d) was deleted from the section on underground storage tank testing because the frequency for underground storage tank testing now varies depending on the monitoring alternative selected in Section 2641. Underground storage tank testing frequency is no longer dependent on the type of underground storage tank or the method of corrosion protection. For example, Health and Safety Code Section 25292 (formerly Section 25284.1) states that the minimum frequency of monitoring is monthly, and in monitoring alternative number 1 (see Table 4.1) where underground storage tank testing is the only monitoring method employed, the test must be performed monthly no matter what the underground storage tank is constructed of or what method of corrosion protection is being used. Furthermore, only one frequency (yearly) is used in each of the other monitoring alternatives that employ underground storage tank testing. It is inappropriate to assume that galvanic and electrolytic corrosion are not the only mechanisms of underground storage tank failure. Underground storage tanks of any age can fail from improper installation, settlement, deterioration of nonmetallic materials, etc. Furthermore, the absence of past leakage does not preclude future leaks. For a further discussion of the frequency of underground storage tank testing in the various alternative monitoring methods, please see the Statement of Reasons and Response to Comments for Section 2641.

(OAL 56, 67A, 67B)

Commenters recommended that the frequency for underground storage tank testing ~~is~~ (or similar to that specified) in Subsection 2642(d) of the ~~XXXXX~~ August 23,

1984 text of the proposed regulations which took into account corrosion protection and tank age be reinstated ~~in the proposed regulation~~ in lieu of annual underground storage tank testing in monitoring alternatives listed in Subsection 2641(c) [87, 87g, 87h, 91b, 91c, 138b] This comment is rejected. For a discussion of the rationale that was considered for determining the frequency of underground storage tank testing in the different monitoring alternatives, please see the Statement of Reasons and Responses to Comments for Subsection 2641(c). Furthermore, galvanic and electrolytic corrosion are not the only mechanisms of underground storage tank failure. Underground storage tanks of any age can fail from improper installation, settlement, deterioration of nonmetallic materials, etc. Please see previous comment and response for why Subsection 2642(d) was deleted in the first place.

Commenters recommended that the frequency of underground storage tank testing should be lengthened for those alternatives in Subsection 2641(c) that now require underground storage tank testing annually. This comment is rejected. For a discussion of the rationale that was considered in determining the frequency of underground storage tank testing in the different monitoring alternatives, please see the Statement of Reasons and Response to Comments for Subsection 2641(c).

Commenters requested modifications in the exemptions contained in Subsection 2642(b), of the initial draft of the proposed regulations. [21, 50, 102, 117] These comments are rejected. This subsection was deleted from the proposed regulation. Section 2641 was added which provides for monitoring alternatives making the consideration of exemptions a moot point.

The accuracy of underground storage tank testing procedures requires that a number

of different adjustments be considered in order to achieve reliable test results. These factors include (1) the presence of vapor pockets, (2) thermal contraction and expansion of the hazardous substance, (3) temperature stratification in the underground storage tanks, (4) evaporation, (5) pressure variations in the underground storage tank, and (6) deflection of the underground storage tank ends. Present technology is imprecise in detecting leaks smaller than 0.05 gallons per hour. Consequently, this is the standard required in Subsection (b). Failure to take these variables into account could cause a tank test to indicate a loss of volume of substance due to contraction of the substance during the test which could be interpreted as a release unless the thermal properties were considered. Even more critical would be possible expansion of the substance during the test which could make a release of a volume equal to the expansion volume.

(OAL 30)

Commenters recommended referencing the National Fire Protection Association (NFPA) Pamphlet 329 in lieu of, or in addition to, describing the precision test in Subsection (b) [53, 78, 78c, 97]. *THIS COMMENTARY IS REJECTED/ OTHER RECOMMENDATIONS SHOULD BE GIVEN IN THE PROPOSED REGULATIONS/* The criteria for the precision test in NFPA 329 *is* are embodied in Subsection (b).

(OAL 147B)

A commenter stated that "at a rate of 0.05 gallons per hour or less" is unclear in Subsection (b) and that this phrase should be changed to say "or more" to reflect the actual intent of this subsection. [151b] *THIS COMMENTARY IS REJECTED/ THE PROPOSED WORDING SHOULD HAVE THE WORD "AND" BE ADDED TO READ "AT A RATE OF 0.05 GALLONS PER HOUR OR AND/OR MORE" WHICH IS THE INTENT OF THIS SUBSECTION/ THE RECOMMENDED CHANGE WOULD BE THAT THE*

~~00000000~~ The regulations have been amended to delete "or less" from this subsection and subsection (d). The term "or more" was not added, because other people may construe that to mean that you do not have to be able to detect a leak as small as 0.05 gallons per hour, which is not the case.

(COMMENT ON MAY 14, 1985 AMENDMENTS)

One commenter objected to the deletion of "or less" in Subsections 2643(b) and (d). The commenter was concerned that this deletion would make leaks of less than 0.05 gallons per hour permissible [11b].

This comment is rejected. Subsections (b) and (d) deal only with the accuracy of the test; whereas, Subsection (f) deals with detected leaks. Subsection (f) does not specify any detection limits; therefore, even a detected leak of less than 0.05 gallons per hour would be subject to this subsection.

A commenter recommended that the size of the adjustments for thermal expansion, etc., in Subsection (b) should be specified. [97] This comment is rejected. The values to be applied to the above conditions vary for the particular tests that are available. Some tests require an adjustment factor for a particular condition, where as other tests may automatically compensate for the same condition.

(QAL 99A, 122B, 156C)

Commenters pointed out that the accuracy of the precision test will still allow a leak of 1.2 gallons per day (0.5 gallons per hour) or less to go undetected and that a contradiction will arise when other monitoring indicates an unauthorized release, but the leak is smaller than the accuracy of the underground storage tank test. [98/122B,

133, 199] Another commenter questioned how ground water will be protected if a leak of less than 0.05 is allowed to exist [98]. ~~These~~ comments ~~is~~ are rejected. ~~The proposed rule is not intended to prevent the release of hazardous substances from underground storage tanks. The accuracy specified for the internal testing of underground storage tanks is equivalent to the precision required by the National Fire Protection Association (NFPA) Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids." The 0.05 gallons per hour was used by the NFPA due to the technical difficulty inherent in determining leakage rates smaller than this level and the availability of equipment and methods that can "theoretically" meet this accuracy level. More accurate methods for internally testing the integrity of the underground storage tank would be preferred by the State Board, but requiring a precision level which cannot be met by available technology would serve no purpose in the regulatory process.~~ In probability is small that there will be many instances where a leak will remain less than 0.05 gallons per hour for the length of time necessary for some other monitoring method to detect the leak. However, the detection of the hazardous substance being stored by means of another monitoring method along with a negative underground storage tank test may indicate an unauthorized release below the detection level of underground storage tank testing.

(QAL 122A.)

One commenter stated that pressure testing of underground storage tanks should be an acceptable method of underground storage tank testing under these regulations because a pressure test is capable of measuring a leak as small as 0.05 gallons per hour [98, 135] This comment is rejected. Subsection 2643(b) only specifies the criteria that an underground storage tank test must meet to be acceptable, but it does not specify any

particular test. Subsection (d) does, however, require that the person performing the test certify that it meets the requirements in Subsection (b).

A commenter stated that the testing criteria in Subsection 2642(c) of the initial draft of the proposed regulations is not an appropriate test for a new unburied underground storage tank [see Subsection 2635(b)(3)]. [117] ~~SY/YY~~  
~~XXXX/YY/ XXX/YY/~~ Subsection 2635(b)(7) was added to the proposed regulations prescribing a different test procedure for new underground storage tanks.

Subsection (c) provides for the use of hydrostatic pressure testing of pipelines in lieu of the precision test in Subsection (b), with one exception. The advantage of the pressure test is that it can be simpler and require less time to perform than the precision test; however, it is inconclusive for small leaks that are within the accuracy of the precision test. Section 4-33.6.1 of NFPA Pamphlet 329 states that a pressure loss of more than 5 pounds per square inch (psi) per minute is an indication that a leak is present, but a pressure loss of less than 5 psi per minute is inconclusive and may be the result of cooling a leaky test valve or a pipe leak. Therefore, when a pressure loss of less than 5 psi per minute is encountered, the more precise test in Subsection (b) must be utilized. Page 111 of Technology for the Storage of Hazardous Liquids indicates that 50 psi is routinely used as the initial pressure for testing pipes.

A commenter recommended that Subsection (c) reference the NFPA Pamphlet 329 for hydrostatic testing, as was done in Subsection 2634(f)(6) of the second draft of the proposed regulations. [87g] This comment is rejected. The regulations may not reference another publication. Subsection 2634(f)(6) was deleted. The requirements in

Subsection (c) for hydrostatic testing are similar to the requirements in NFPA Pamphlet 329.

A commenter recommended that the term "pressure drop" in Subsection (c) be replaced with the more appropriate term "pressure loss". [22d] This comment is rejected. The recommended change materially changes the meaning of Subsection (c). The term "pressure drop" is clearly understood as it presently exists in Subsection (c). The test is performed with a pressure guage and the guage "drops" in pressure.

The ability of a underground storage tank test to meet the intent of this section is a function of both the test itself and how the test is performed. Obviously, a test that either does not have an accuracy of 0.05 gallons per hour or does not take into account the other requirements of Subsection (b) is not acceptable. Since a test may or may not meet these requirements, it is important for verification to have the person performing the test certify that the test conforms to the requirements in Subsection (b). Ideally, it is desirable to limit the test to those tests that have been certified or listed as meeting the requirements of Subsection (b), which would remove any doubt as to which tests could be utilized. Therefore, Subsection (d) requires the use of certified or listed tests within 1 year of the development of the certification or listing process.

A commenter questioned whether Subsection (d) infers that training for underground tank testing will be required of local agencies and Regional Board personnel. [168] This comment is rejected. Subsection (d) applies to the personnel employed by the owner or operator to perform the necessary tank testing.

(QAL 143C)

Commenters stated that it is unclear who will "list" or "certify" the test methods in Subsection (d) [116c, 102e, 160b].

~~THE COMMENTER IS REQUESTING~~ Subsection (d) has been changed to indicate that A a listing or certification procedure is to be ~~provided~~ provided by ~~a~~ a nationally recognized independent testing organization. ~~THE COMMENTER REQUESTS THAT THE TESTING ORGANIZATION BE A NATIONALLY RECOGNIZED TESTING ORGANIZATION~~

A commenter recommended that underground storage tank tests should not have to be observed by an inspector every time they are performed. [160b] This comment is rejected. Subsection (d) required that the person performing the underground storage tank test certify that it meets the requirements in Subsection (b); however, there is no requirement that an inspector observe the test.

A commenter indicated that no independent laboratory has verified that testing equipment currently available can detect leaks as small as 0.05 gallons per hour and that the proposed regulations should require testing to a level of detection that has been proven viable by an independent laboratory. [114] Subsection (d), as described above, has been added to the proposed regulations. This does not mean that tests do not exist now that can measure leaks as small as 0.05 gallons per hour. Literature reports that a number of testing methods are capable of measuring leaks of this magnitude or smaller. For this reason, Subsection (d) requires that the person performing the test certify that the test will meet the requirements of Subsection (b).

Commenters indicated that certain specific underground storage tanks and pipeline



testing methods will meet the requirements of the precision test in Subsection (b).

[20b, 39, 89, 98, 148] These comments are rejected. It may be quite possible that the testing methods cited are capable of meeting the requirements in Subsection (b); however, the proposed regulations cannot endorse any particular test. Individuals who have a vested interest in any particular underground storage tank test that can meet the requirements of Subsection (b) should seek to have their test included in the certification or listing process described in Subsection (d).

Subsection (e) requires that the results of any underground storage tank testing be submitted to the local agency with a report detailing the appropriate information. This is necessary to ensure that the tests were performed properly and keep the local agency aware of the operation's compliance with the testing schedule specified in Section 2641. For the same reason, any other test performed on the underground storage tank must be reported to the local agency as specified in Subsection (g).

Commenters recommended that the requirement to report test results to the local agency in Subsections (e) and (g) be eliminated since Section 25293 of the Health and Safety Code [formerly Section 25284.2] requires the operator to keep monitoring records to enable the local agency to determine that the operator has undertaken all monitoring activities required by the permit to operate and Section 25288 of the Health and Safety Code [formerly Section 25283.4] requires the local agency to inspect the underground storage tank at least once every 3 years to determine if the facility is being monitored in accordance with its permit. [102, 139, 139c] These comments are rejected. Section 25299.3 of the Health and Safety Code (formerly Section 25288.2) authorizes the State Board to develop regulations implementing the standards of Section 25292(b)(1) for underground storage tank testing. The proposed regulations

are, therefore, an interpretation by the State Board of the requirements necessary to implement the law. The proposed regulations require underground tank tank testing either monthly or annually depending on the monitoring alternative selected in Section 2641. As a result, inspections may not keep the local agency up to date on the frequency and results of underground storage tank testing, since the law only requires inspections once every 3 years. With regard to Subsection (g), tests performed other than those that are required are prompted, in most cases, by a suspected leak. By reporting this information to the local agency, even if the results are negative may, for example, may aid the local agency in isolating the source if there is suspected ground water contamination in the area.

A commenter indicated that there is a contradiction in Subsections 2642(c) and (g) in the initial draft of the proposed regulations with regard to Section 25293 of the Health and Safety Code [formerly Section 25284.2]. [139] Specifically, Subsections (c) and (g) require the owner to report underground storage tank testing results to the local agency, whereas Section 25293 places the responsibility for monitoring on the operator. [139] This comment is rejected. The owner and operator are required by Subsection 2610(b), if they are not the same individual, to enter into a contract concerning, among other things, the implementing of reporting procedures as required by the permit.

When the underground storage tank test reveals an unauthorized release from an underground storage tank, the tank is considered to be leaking and must be either repaired as specified in Section 25296 of the Health and Safety Code (formerly Section 25284.5) or replaced. In addition, Article 5 requires that as soon as an unauthorized release is detected, the reporting requirements therein must be followed.

A commenter recommended technical changes to Subsection 2643(h) of the initial draft of the proposed regulation relating to the pressure testing of underground storage tanks and pipelines containing flammable or combustible liquids. [87g] Subsection 2643(h) was deleted because it was determined that this requirement was outside of the authority granted the State Board in Chapter 6.7, Division 20, of the Health and Safety Code.

Comments provided regarding comments on Subsection 2641Y in the second draft of the proposed regulations regarding pipeline leak detection, 19U/20U/53/87/102/  
Pipeline leak detection was deleted from this section and and placed in the new  
Section 264Y for monitoring alternatives. For a response to these comments, please  
refer to Statement of Reasons and Response to Comments for Section 264Y.

### 4.105

monitoring the pipelines of new motor vehicle fuel tanks in Article 3 was deleted from the final draft of the proposed regulations. The requirement was deleted to conform to the requirements of Chapters 1038, 1537, and 1584 of the statutes of 1984 (Assembly Bills 3565, 3447, and 3781, respectively) which amended Chapter 6.7 of the Health and Safety Code.

### References

National Fire Protection Association, Incorporated, Publication 329, June 1983,  
"Underground Leakage of Flammable and Combustible Liquids 1983"

New York State, Department of Environmental Conservation, January 1983,  
Technology for the Storage of Hazardous Liquids, A State-of-the-Art Review" .c

## SECTION 2644. INVENTORY RECONCILIATION

### Specific Purpose

Some of the monitoring alternatives described in Section 2641 require inventory reconciliation as one monitoring method. This section describes the procedures that underground storage tank owners or operators must utilize if they are required to implement an inventory reconciliation monitoring program. The specific purpose of these procedures is to provide consistency in inventory reconciliation methods and to assure that widely accepted feasible methods are utilized.

Additionally, this section outlines the steps that a underground storage tank owner or operator must follow if inventory reconciliation exceeds the allowable variations described in Section 2641. The specific purpose of outlining these steps is to provide a consistent, rationale and timely approach to investigate the inventory reconciliation variation in order to determine if it was due to an underground storage tank leak or some other identifiable cause.

### Factual Basis

Subsection (a) provides information on the applicability of this section. It has been revised from the initial draft of the proposed regulations to eliminate the requirement that the section was applicable to all underground storage tank owners since Section 2641 now specifies monitoring alternatives only some of which require inventory reconciliation. This subsection also allows the transfer of the responsibility for

performing and maintaining inventory reconciliation from the owner to the operator as provided in Section 25293 of the Health and Safety Code [formerly Section 25284.2].

A commenter questioned why this monitoring alternative was not available to new, non-motor vehicle fuels storage tanks which could perform accurate inventory reconciliation. [130] This comment is rejected. Section 25291 of the Health and Safety Code [formerly Section 25284] provides for construction and monitoring methods for new underground storage tanks. New underground storage tanks must have secondary containment as provided for in Article 3 of the proposed regulations.

(OAL 99B)

Commenters indicated that inventory reconciliation is not accurate to detect small leaks and that this monitoring method should not be required, but should be suggested. [4, 86] Another commenter indicated that a meter error of 1/2 cubic inch per gallon could mask a leak that would pose a serious threat to ground water quality [122b]. Additionally, commenters indicated that inventory reconciliation lacks credibility since an error of 1/8-inch in a 10,000-gallon underground storage tank is a considerable amount of product. [37, 133, 159]

These comments are rejected. Section 2641 provides monitoring alternatives, some of which utilize inventory reconciliation. As described in that section, inventory reconciliation is not relied upon to provide total leak detection in any monitoring alternative thereby accepting the inaccuracies of the method described by the commenters but compensating for this inaccuracy by providing a form or forms of backup monitoring.

Commenters suggested that the proposed regulations should allow the owner or operator to perform the required inventory reconciliation consistent with the statute. [53, 87, 102] A sentence was added to Subsection (a) to provide for this consistent with Section 25293 of the Health and Safety Code [formerly Section 25284.2]. A commenter suggested that Subsection (a) be reworded to state that this section be followed when inventory reconciliation is required. [138] This comment is rejected. The subsection is clear as proposed in that it requires all underground storage tank owners who implement a monitoring alternative that specifies inventory reconciliation must adhere to this section.

(QAL 131A)

A commenter said the regulations should not refer to "gain of hazardous substance", because any unaccountable increase could only be the result of infiltration by water. [124]

This comment is rejected. The volume of the stored hazardous substance in the tank may increase for various reasons, including water infiltration (which may, in fact, dilute the hazardous constituents within the tank). The concern is only with the volumetric measurements recorded and the tank owner's ability to account for variations by inventory reconciliation, temperature correction, etc. An unaccountable loss results in a presumption that the tank is leaking. When an unaccountable increase is detected, the tank owner will have to identify the reasons, including infiltration, temperature change, etc. If infiltration occurs, the hazardous substance could escape if groundwater were to lower below the point of tank failure.

(OAL 131C)

A commenter recommended that "owner" in Subsection (a) be changed to "operator" to be consistent with industry practices. [124] As stated above, this subsection has been amended to allow operators to perform inventory reconciliation. To eliminate "owner" from this subsection would be inconsistent with Section 25293 of the Health and Safety Code.

A commenter suggested that all operators should maintain records of fluid levels in their underground storage tanks. [39] This comment is rejected. Inventory reconciliation is only required as part of some monitoring alternatives listed in Section 2641. There are situations and fluids which preclude the use of inventory reconciliation. Additionally, inventory reconciliation may be duplicative (in terms of complying with the monitoring objectives) of other monitoring methods that are implemented; therefore, requiring this form of monitoring in all situations would be unwarranted and unnecessary.

Subsection (b) from the first draft of the proposed regulations has been deleted. This subsection listed exemptions to the requirement that inventory reconciliation be performed by all underground storage tank owners. Inventory reconciliation as a monitoring method has been made a part of some of the ~~§~~ eight monitoring alternatives listed in Section 2641 where appropriate.

(OAL 62)

A commenter recommended that double-walled underground storage tanks be exempted [147]. This comment is rejected. The comment relates to new underground storage tanks which are not addressed in this article. A double-walled underground storage tank which satisfies the construction and monitoring requirements for new tanks



specified in Article 3 is considered a new tank and consequently exempt from the requirements of this article.

(OAL 62 continued)

Other commenters requested that the exemption section be expanded to include self-use underground storage tanks and underground storage tanks storing substances not proposed for resale. [12, 21, 97, 110, 113, 114, 139, 147]. These comments are rejected. As described above, this subsection has been deleted, and monitoring alternatives have been included in Section 2641. Some of the monitoring alternatives do not require inventory reconciliation which allow these commenters to select ~~if~~ ~~if~~ monitoring methods other than those which include inventory reconciliation. Additionally, the accuracy of the inventory reconciliation system relies on the precision of the metering devices used in determining the inputs to and withdrawals from the underground storage tank, and as such, these devices are required by regulation to be calibrated. Allowing metering devices of unknown precision to be used in inventory reconciliation as suggested by the commenter would negate the already questionable use of this monitoring method.

As required in Subsection (b), each underground storage tank must be monitored separately so as to be able to determine which underground storage tank is leaking if inventory reconciliation indicates a loss of stored hazardous substances. The proposed regulations allow underground storage tanks which are hydraulically connected to be monitored as a unit since the hazardous substances within these underground storage tanks can freely move between underground storage tanks if the manifold is open. Accurate metering of hazardous substances into and out of the underground storage tank is essential for inventory reconciliation since one figure used in the calculation

is underground storage tank inputs and withdrawals. Meters used in California for wholesale or retail sales are required to be calibrated to a certain degree of accuracy. Since this degree of accuracy is easily within technological capabilities at reasonable costs, it is being mandated in the proposed regulations.

A commenter stated that metering was not very easily accomplished on waste streams or in situations where no meter exists. [117, 117c] This comment is rejected. The monitoring alternatives allow for the selection of monitoring methods which are implementable and effective in specific situations. herefore, if a specific substance cannot be metered or if no meter exists, the underground storage tank owner can and must utilize a monitoring alternative that does not include inventory reconciliation.

Commenters requested that individuals licensed by the State should be allowed to calibrate meters. [53,87, 102] Additionally, a commenter requested that this subsection be reworded to make the references consistent with applicable State regulations on meters and licensed repairmen. [202] The regulations have been reworded to include the suggestions of the latter commenter. This rewording provides for licensed personnel to calibrate meters.

A commenter indicated that many small underground storage tanks use non-certified meters which can be calibrated and are accurate. [136] The proposed regulations has been modified to allow the use of these meters if they are calibrated by a device repairman.

A commenter requested that owners of underground storage tanks that are on a common manifold be allowed to monitor the underground storage tanks as a unit

rather than separately. [102] The proposed regulations were modified to account for this proposal.

A commenter requested clarification on metering tank underground storage inputs since many delivery trucks do not have meters, but liquids are metered into the tank truck. [102] Another commenter questioned whether the meters on delivery trucks could be used to meter the hazardous substance into the underground storage tank. [163] These comments are rejected. The objective of accurate inventory reconciliation is to compare the difference in volume of the hazardous substance in the underground storage tank between two points in time with the volume added to and withdrawn from the underground storage tank during the period. Therefore, it is not specified that the input meter be on the pipe entering the underground storage tank so long as the volume of hazardous substance being added to the underground storage tank is accurately metered. Calibrated truck meters or the use of meters in filling the delivery truck are acceptable methods of achieving the objective.

(OAL 126)

One commenter indicated that the wholesale meter on the delivery vehicle may cause additional errors in the inventory control as only too often, product that has already been metered but remains in the hose and is discarded somewhere other than in the tank. It becomes an impossibility to determine where this loss occurred [133]. This comment is rejected. If the tank is tight, but the results of inventory reconciliation are not within the limits specified in the appropriate monitoring alternative, than any of a number of problems may be occurring, including the one described above. The owner will have to either take necessary steps, such as supervising deliveries, or select a different monitoring alternative.

Daily inventory reconciliation as required in Subsection (b) and defined in Subsection (c) is necessary to assure that periods over which the comparison described in the prior paragraph is made are not excessive. Furthermore, daily inventory reconciliation is required in Section 25292(b)(4) of the Health and Safety Code [formerly Section 25284.1(b)(3)]. In monitoring alternative numbers 5, 6, and 8, inventory reconciliation is being relied upon to provide immediate detection of sizeable leaks. Most of these facilities are staffed on a daily basis, except possibly weekends, so the requirement to perform inventory reconciliation on a 5 day per week basis is reasonable. Since daily was not defined in the statute, a provision was made to not require inventory reconciliation when a facility is not staffed on weekends, holidays, or normal closure days in the middle of a week for those facilities open mainly on weekends.

However, the minimum allowable frequency is established as once every 3 days or on days that inputs or withdrawals are made, even at facilities which are not staffed on a regular basis. Pipeline leaks are one of the most common problems, and these types of leaks can result in large releases over a short period, especially at facilities where the pipelines are under pressure. Pipeline pressure loss detectors will, if operating properly, detect some of these losses; however, inventory reconciliation provides a higher degree of assurance of detecting the leak. Daily inventory reconciliation is, therefore, essential on days when inputs and withdrawals are made. Underground storage tanks can develop leaks even during a period when no inputs or withdrawals are made. Extending the time period between reconciliations to a maximum of 3 days has no technical justification other than a short period is better than a long period. The 3 day period was a policy decision which was intended to eliminate this requirement on weekends if staff was not normally present.

(OAL 112D)

A commenter requested that "daily" monitoring be changed to "periodic" monitoring. [109] Commenters suggested that daily inventory reconciliation when a facility was not open was unnecessary. [53, 87,98, 102, 138]. Commenters requested an extension of the time between inventory reconciliation for remote facilities, those with automatic withdrawal systems (non-staffed keylocks), and small businesses. [100,168] These comments are rejected. As described above, the frequency of monitoring was modified to provide some flexibility and to eliminate the burden of monitoring when the facility was not staffed or operated. However, extending this frequency beyond that described previously would significantly reduce the effectiveness of this monitoring method and would be inconsistent with the statute. Additionally, if an underground storage tank owner does not want to perform inventory reconciliation at the minimum frequency specified, they are free to select a monitoring alternative which does not include inventory reconciliation.

The procedures specified in Subsection (d) are intended to assure accuracy in the determination of the volume in the underground storage tank. This is essential since the difference in volume between two points in time are compared to the inputs and withdrawals over that period to determine if a leak is indicated. When additions to the underground storage tank and withdrawals from the underground storage tank are being made, the liquid level is dynamic. This causes inaccuracies in measuring this level. A non-turbulent liquid surface provides a more accurate reading.

Comments indicated that stopping inputs and withdrawals over the time needed to perform this measurement would require a shutdown of the business. [102, 188] This comment is rejected. This procedure can easily be performed in less than 5 minutes for 3 tanks at a service station. Furthermore, it can be done just before opening or just after closing at many facilities or during slow period with minimal inconvenience to the business or customers. The benefits of measuring a flat static liquid surface significantly outweigh the problems identified by the comment which can be almost completely mitigated.

The measure of the liquid level in the underground storage tank is a relatively simple procedure; however, it does have its pitfalls, such as dropping the stick into the gauging opening causing holes in tanks; inaccurate sticks due to wearing away the bottom; inaccurate readings due to the turbulence created by inserting the stick into the liquid; leaving the the stick in the tank too long allowing the liquid to "climb the stick" due to capillary action; or mis-reading the stick. Because of this, it is essential that the person doing this work be a responsible owner or employee with adequate training.

(OAL 87B)

Commenters requested that the provisions specifying the type of person performing this test be broadened to include personnel other than owners and operators as stated in the original draft. [12, 102, 110, 121, 139] Another commenter stated that allowing only the owner, operator or management personnel to stick the tank is unenforceable [117]. The proposed regulations have been modified appropriately. By adding "or other designated personnel", there should be little reason for the owner or operator not to comply with this requirement.

Stick readings are inherently inaccurate due to the 1/4-inch minimum stick calibration, the turbulence created when the stick is placed in the underground storage tank, the possible mis-reading of the stick, and the capillary action of the liquid. In order to improve the liquid level measurement, 2 readings should be used. This is recommended by the American Petroleum Institute in their Publication 1621.

A commenter indicated that taking 2 stick readings was unnecessary. [102] This comment is rejected. Stick readings, as discussed above, have inaccuracies; and it is recommended practice to take 2 readings.

Water in an underground storage tank which is storing hazardous substances can be an indication of a problem, such as a hole in the underground storage tank allowing ground water to enter the underground storage tank. A change in the volume of water is especially critical since many motor vehicle fuel tanks normally have a small water layer. Due to the normal-phase separation of water and typical motor vehicle fuels, this water layer is usually at the lowest end of the underground storage tank; therefore, it is essential to stick the underground storage tank at this lower end to

detect the water layer and any change in its volume.

Most underground storage tanks are not perfectly level due to intentional installation practices or settlement. Measuring the liquid level in a non-level underground storage tank at the longitudinal center provides an accurate measurement. However, measurement at only 1 end will provide a false indication of the liquid level and subsequent volume calibrations since the liquid level will be horizontal, but the underground storage tank bottom is tilted. Measurement at the lower end of the tilt will provide a larger liquid height than measurement at the high end of the tilt. Determining the amount of tilt such that measurements taken at one end can be adequately adjusted to the proper underground storage tank volume to liquid level calibration is essential to accurate inventory reconciliation.

Accurate underground storage tank calibration charts for converting liquid level to actual volume is essential for accurate inventory reconciliation. Old underground storage tanks may not have these charts available, and a new chart may have to be developed based on underground storage tank calibration. In order to improve the accuracy of this underground storage tank calibration chart, it should take the underground storage tank tilt into account.

A commenter requested clarification on the use of a calibration chart which was developed based on the underground storage tank dimensions or historical record. [121] The modification to the proposed regulations will allow for this.

A commenter recommended that the reference in Subsection (c) to "Subsection (6)" should be "Subsection (5)". [87, 138] The proposed regulations have been modified.



The initial draft of the proposed regulations required measuring the liquid level to 1/8 of an inch. Commenters indicated that measuring to 1/8-inch is not possible. [102, 113] This subsection was deleted in response to this comment.

Subsection (c) requiring the owner or operator to submit quarterly statements on inventory reconciliation to the local agency was added to provide some assurance that inventory reconciliation was being performed. The uniform fire code has required inventory reconciliation for years, yet many facilities owners or operators do not keep records. This was a policy decision on the part of the State Board and was also intended to implement Section 25292(b)(4)(A) of the Health and Safety Code [formerly Section 25284.1(b)(3)] which requires quarterly review of inventory reconciliation records.

(OAL 143D)

Commenters suggested that maintaining the files on record at the facility for inspection by the local agency was all that was necessary and that this subsection would cause unnecessary paperwork. [20, 87, 102, 117c, 138, 160] Another commenter suggested that a standardized report form be prepared. ~~W07~~ [116c] These comments are rejected. This subsection does not require submittal of actual data, but only a certification that the data was collected and what it indicated. The statute is unclear when it states that the records must be "reviewed quarterly". This subsection is the State Board's interpretation of the statute.

Once an inventory reconciliation variation is detected, it is essential that an investigation be performed to determine if the variation is due to a release or due to

other factors such as metering, sticking, calibration, or calculation errors. The investigation steps described in this subsection are logical, common-sense steps looking at the most frequent, easily detected factors first.

A commenter questioned the 2-hour requirement in Subsection (f)(2) as being 2 hours from what starting point. [12b] This comment is rejected. As clearly described in Subsection (f), this requirement is applicable when an inventory reconciliation is found to exceed an allowable variation. Therefore, the 2-hour period begins when the variation is found.

A commenter questioned the definition of a "qualified person" in Subsection (f)(3). [12b] This comment is rejected. There are many forms of expertise and experience in inventory reconciliation procedures that would qualify a person and it would be impossible to list them all. The person could be the facility accountant, the owner, the motor vehicle fuel supplier's representative, etc.

Commenters questioned the need to go through these steps if inventory reconciliation indicated a gain in underground storage tank liquid volume rather than a loss. [102, 163] This comment has been rejected, in part. The gain of liquid volume is usually indicative of 1 of 2 things: ground water entering the tank through a hole or inaccuracies in inventory reconciliation procedures. In the first case, an underground storage tank hole could allow a release of stored hazardous substances if the level of the substance raises above the hole and the surrounding ground water. This situation is usually easily detected because the volume of water in the underground storage tank will increase significantly over a short time period. The second reason for a gain is more subtle. Inventory reconciliation as a leak detection method is highly

dependent on the accuracy of measurements, meters, calibrations, and calculations. A variation, even a gain, which is not caused by a release, implies that there is an accuracy problem with 1 or more aspects of the process. For this reason, even inventory reconciliation gains should be evaluated. However, in response to the portion of the comment that evaluations be required to investigate a gain has been limited to exclude underground storage tank or pipeline testing.

Commenters indicated that going back to a zero loss or gain for reviewing records as required in Subsection (f)(3) was unnecessary and that they should only be required to go back to the last exceedence of allowable variation. [87, 91] This comment was rejected. Inventory records are subject to numerous problems as has been thoroughly discussed. An exceedence of the allowable variation could have occurred only a few days before, which would not provide for a complete and thorough review of inventory records. Just like a checking account, in order to verify the balance, you must go back to the last zero situation.

(OAL 157B)

Subsections (e) and (f) from the initial draft of the proposed regulations have been deleted. Subsection (e) required verification of deliveries. Commenters indicated that this requirement was infeasible and unnecessary and should be deleted. [12, 37e, 53, 87, 102, 133, 138, 139, 188] The text has been deleted or changed. Subsection (f) specified allowable variations. This concept was moved to the monitoring alternatives section, and all comments relative to this have been responded to in Section 2641.

(OAL 153B)

A commenter requested to be able to temperature-correct the inventory in order to

make inventory reconciliation process more accurate. [168, 94d] This comment is rejected. The regulations neither require nor prohibit temperature correction; therefore, it is up to the owner or operator to implement this procedure.

A commenter questioned the legal propriety and practicality of requiring the implementation of the procedures of this section. [102] This comment is rejected. Section 25292(b)(4)(B) of the Health and Safety Code [formerly Section 25284.1(b)(3)] requires inventory reconciliation. This section specifies the procedures that we believe are necessary be followed to assure that inventory reconciliation can be relied upon for leak detection monitoring.

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## Section 2645. Soil Testing

### Specific Purpose

The specific purpose of Subsection (a) is to apprise underground tank owners that when ground water or vadose zone monitoring wells are installed, soil samples and analyses shall be performed according to the criteria contained in this section.

The specific purpose of Subsection (b) is to clarify that soil samples shall be recovered from all borings that are drilled in connection with the installation of vadose zone and ground water monitoring wells and that these samples shall be intact, or what is commonly called "undisturbed," samples.

The specific purpose of Subsections (c) through (k) is to specify the methods and procedures for obtaining and analyzing soil samples.

The specific purpose of Subsections (l) through (n) is to clarify to an owner the actions that must be taken as a result of the outcome of the soil analyses.

### Factual Basis

As used in Health and Safety Code Section 25292(b)(2) [formerly Section 25284.1(b)(2)], the term "analysis of soil borings" is ambiguous. The term is not defined in Health and Safety Code Section 2581 [formerly Section 25280] nor is it explained in any other section of the statute. There are many methods for obtaining soil samples and many types of analyses that would not be appropriate for underground storage tank

investigations. For example, soil strength testing is a type of soil analyses that has no relevance to leak detection. Therefore, this section is needed to give the underground storage tank owners specific guidance as to the information that they must provide so that the local agency can adequately evaluate an application for a permit.

Health and Safety Code Section 25292(b)(2) [formerly Section 25284.1(b)(2)] is unclear with regard to the type of boring from which soil samples shall be collected. Because contaminated soil would have detrimental effects for both ground water monitoring wells and borings in which vadose zone monitoring is conducted, the State Board has interpreted the word "well" to mean the borings made for vadose zone monitoring and ground water monitoring. The proposed regulations specify the types of borings from which soil samples are to be collected.

Health and Safety Code Section 25292(b)(2) [formerly Section 25284.1(b)(2)] does not specify the depth intervals at which soil samples are to be taken. The proposed regulations specify a minimum sampling interval of 5 feet based on the fact that an interval of 5 feet is commonly used within the industry and does not introduce an intolerable degree of uncertainty in determining whether contamination exists or the depth at which contamination is first encountered. The use of a larger sampling interval would increase the risk of missing a discontinuous contaminated zone. Securing a sample at the termination depth of the boring will provide data for the deepest penetration point of the boring.

Established drilling techniques include both wet and dry methods for bringing cuttings produced by the drilling bit to the surface. However, the use of wet

methods would prevent the detection of wet zones within the vadose zone; would, under most conditions, prevent the accurate determination of the depth to first water; and could mask or otherwise conceal the presence of contamination. This information is critical to the success of the monitoring program; therefore, the proposed regulations specify the use of dry drilling methods whenever possible.

There are many soil classification systems that are used to describe soil. The various systems are designed to achieve varying objectives and use different criteria for the definition of descriptive terms. For example, the range of particle sizes which would be included under the term "sand" is dependent on the soil classification system used. In other instances, some boring loggers use their own intuitive system for logging. Under such circumstances, the boring logs are inevitably misleading and open to misinterpretation. Therefore, the proposed regulations specify the use of an established soil classification system that is appropriate for the type of investigations required and which is widely used for soils investigations.

In addition, soil samples can only be obtained at the time a boring is drilled; therefore, the proposed regulations specify that each soil sample shall be of sufficient volume to provide enough material for adequate testing. Depending on the number of borings drilled, there could be several soil samples representing the same depth. In order to reduce the number of laboratory analyses that would be necessary, and therefore the costs, the proposed regulations permit compositing of samples from different borings that were obtained from the same depth. This is an acceptable procedure as long as the potential contaminate will not be lost as a result of compositing, (e.g., volatilization) and as long as the mixing of uncontaminated samples with a contaminated sample(s) does not cause the contaminant to be diluted to a



concentration below detection limits.

There are numerous procedures for obtaining and processing soil samples. However, only certain of these procedures are appropriate for any given set of circumstances and monitoring objectives. If inappropriate procedures are used, the effectiveness of the monitoring program could be severely diminished. EPA has developed procedures that are specifically for use in monitoring for hazardous substances. The proposed regulations specify that EPA-approved methods be used, but the local agencies are authorized to approve other methods that are of similar or superior precision and accuracy.

Some hazardous substances are relatively unstable and transform or degrade into other constituents. This is especially true of organic substances. Further, there often are certain primary constituents of a hazardous substance or secondary transformation products caused by degradation of the primary constituents that are persistent. In testing for the presence of contamination, it is critical that analyses are made for those constituents that are most likely to remain in the soil. Therefore, the regulations specify that the analysis be designed to detect persistent primary constituents and transformation products.

It is our interpretation of the statute that underground storage tanks that are leaking, or are structurally impaired, or that can not be adequately monitored, or that pose any actual threat to water quality, shall not be permitted. Health and Safety Code Section 25292(b)(2) [formerly Section 25284.1(b)(2)] provides for soil testing but does not expressly specify the actions that shall be taken as a result of the soil analyses. However, it is implicit that the Legislature intended that the results of the soil

analysis should be the basis by which further action would be determined. The proposed regulations specify the appropriate actions that shall be taken to achieve the statute's objectives as dictated by the results of the soil analyses.

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Response to Comments (In the initial draft of the proposed regulations soil testing was in Section 2644 but in the proposed regulations the section has been renumbered 2645.)

1. Commenters believes that Section 2644 should be deleted because soil testing and exploratory boring is not mandated by AB 1362. [4a, 4b, 81]

Response: This comment is rejected. Subsection 25292(b)(2) of the Health and Safety Code [formerly Section 25284.1(b)(2)] explicitly authorizes soil testing and ground water monitoring wells. The exploratory boring, is in fact, a well used to determine the depth to ground water. As with any other well, if water is

encountered, it is outfitted with casings, seals, etc. If ground water is not encountered, the boring is abandoned. Furthermore, the proposed regulations have been revised so that the ground water level may be determined by existing wells in the vicinity of the facility instead of drilling an exploration well.

2. Commenters suggests that where further testing is found necessary after initial testing confirms a problem, then a properly located vertical boring is more cost-effective than a slant boring. Therefore, slant borings should be eliminated as a mandatory method. [81E, 89, 102, 114, 138, 97, 112, 29].

Response: The requirement for mandatory slant borings has been deleted from the proposed regulations.

3. A commenter believes that some of the requirements for soil testing involve some very expensive technology. Other testing systems are more reliable in checking leakage and gasoline loss in underground storage tanks. [135]

Response: This comment is rejected. However, the State Board has concluded that borings exclusively for soil sampling are unnecessary. Soil analysis is mandatory only when monitoring wells are installed pursuant to Health and Safety Code Section 25292(b)(2) [formerly Section 25284.1(b)(2)].

4. A commenter believes that this alternative method of monitoring is really only applicable to past releases and would only be necessary if other monitoring methods indicated a high probability of an unauthorized release. [86]

Response: This comment is rejected. The effectiveness of most monitoring techniques is dependent on site-specific conditions. Soil testing is necessary to evaluate site conditions in order to determine which types of monitoring will be effective at a given site. Furthermore, soil testing is currently extensively used to detect active leaks and is effective.

5. A commenter believes that requirements for such provisions as registered personnel, specific thresholds for sampling and testing, and mandated slant borings--all out of the spectrum of the legislation--allow businesses little local discretion in identifying less costly alternatives. This is believed to be an unfair financial burden on businesses. [84]

Response: This comment is rejected. Subsection 25292(b)(2) of the Health and Safety Code [formerly Section 25284.1(b)(2)] specifically authorizes soil analyses, and Section 25299.3(a) [formerly Section 25288.2(a)] authorizes the State Board to develop regulations implementing Section 25292. The provisions of the proposed regulations are the minimum necessary to achieve the objectives of the statute. The proposed regulations have been revised, however, to delete the requirements for mandatory slant drilling, and borings may be logged by an unregistered individual under the direct supervision of a registered professional [Subsection 2648(t)]. Additionally, monitoring alternative number 8 provides for less costly interim monitoring for certain underground storage tank owners that may not be financially able to install all monitoring requirements by the deadline.

6. Commenters question the State Board's authority to determine if any unauthorized discharges has occurred in the past, as attempted in Section 2644(a). [139, 97, 87g,

102h]

Response: The proposed regulations have been revised, and requirements to monitor for historic unauthorized releases have been deleted.

7. Commenters believe that a cluster of underground storage tanks in the same excavation should require only one evaluation. [29, 12]

Response: This comment is rejected. The commenters are referring to the initial draft of the proposed regulations which required mandatory borings exclusively for soil testing. This requirement has been modified in the proposed regulations, and soil sampling is now only required when borings are made for ground water or vadose zone monitoring wells. The extent of soil sampling will be determined by the number of wells that are installed [Subsection 2645(a)].

8. Commenters believe that in order to determine whether or not past leakage has occurred from the underground storage tank facility, a product piping sampling program should be implemented. Such a sampling regime may resemble that set forth in Article 7, Section 2672(d)(1). [29, 113]

Response: This comment is rejected. The proposed regulations have been revised to delete investigation of historic leaks as an objective of the monitoring program [Subsections 2640(a) and (b) and 2645(a)].

9. A commenter suggested that an exemption should be added to Section 2645(b) for tanks that were installed after

January 1, 1984. [113]

Response: This comment is rejected. The initial draft of the proposed regulations have been modified, and the proposed regulations do not require mandatory soil sampling.

10. A commenter proposed that to add to Section 2644(b) an exemption for corrosion resistant underground storage tanks and underground storage tanks under cathodic protection which were installed at a facility within the last fifteen years and where soils or records at the time of installation did not show evidence of prior leaking. [119]

Response: This comment is rejected. The statute does not authorize an exemption for the conditions described by the commenter. Therefore, even corrosion resistant underground storage tanks and underground storage tanks under cathodic protection installed within the last 15 years must be monitored pursuant to Article 4 which includes soils samples where appropriate.

11. A commenter suggested that an exemption be added to Section 2644(b) if the owner of an underground storage tank is able to demonstrate the adequacy of an existing monitoring and inventory reconciliation program meeting the intent of the exemption provided for in Section 2640(c) of Article 4. [109]

Response: This comment is rejected. No exemption is required. If a facility already has a monitoring system that meets the requirements of these proposed regulations, no additional monitoring is required.



12. A commenter suggests that Section 2645(b) include exemptions for situations where the proximity to physical obstacles prevent the positioning and operation of drilling equipment or where soil conditions prevent drilling by any generally existing techniques. [98] It is further stated that exemptions should include those underground storage tanks that have undergone leak detection testing and have been found to be leak free.

Response: These comments are rejected. The statute explicitly requires soil sampling when ground water and vadose zone monitoring wells are installed. However, if the conditions cited by the comment exist, an alternative monitoring system that does not include soil sampling may be more appropriate. Further, underground storage tanks that have undergone past testing must still be monitored for possible future leaks.

13. A commenter wants to know what kind of soil conditions are being addressed in Section 2645(b). [12]

Response: This comment is rejected. A waiver can be granted for conditions that prevent drilling or that prevent the recovery of samples such as dry cohesionless material that cannot be retained in the sampler or material that is too coarse to enter the sampler.

14. A commenter believes that Section 2645(c) should be revised to indicate that slant boring is the optional choice if vertical boring is not possible. [86]

Response: This comment is rejected. The State Board concluded that slant borings are unnecessary and, therefore, slant borings have been deleted from the proposed regulations. The comment is no longer germane to the proposed regulations.

15. A commenter suggests that Section 2645(c) be revised to 50 feet or less below the invert of the tank. Also, commenters believed that Section 2645(d) of this section would provide the same necessary data and the same or greater degree of confidence as those specified in Section 2645(c). [12, 113, 93, 109, 99, 138,]

Response: This comment is rejected. The State Board concluded that the requirement for mandatory soil borings exclusively for soil sampling is unnecessary, and the requirement has been deleted from the final proposed regulations. The comment is no longer germane to the proposed regulations.

16. A commenter believed that a statement in Section 2645(c) should be included to require vertical borings first and, if conditions permit, proceed with slant drilling. [110]

Response: This comment is rejected. The State Board concluded that the requirement for slant borings is unnecessary, and the requirement has been deleted from the final proposed regulations. The comment is no longer germane to the proposed regulations.

17. Commenters proposed that Section 2644(c) be deleted because (1) the requirement is inconsistent with the language prescribed in Health and Safety Code Section

25292 [formerly Section 25284.1] which only requires an "analysis of soil borings at the time of initial installation of the well" and (2) the requirement for slant borings is unnecessary given the likelihood of lateral migration. [102, 87]

Response: Section 2644(c) has been deleted.

18. A commenter believes that the term "close as possible" is not consistent with the requirement to slant drill the intersect a point 50 feet below the invert of the underground storage tank. It would seem desirable to get as close as possible to the underground storage tank invert, not an arbitrary 50 feet. [117]

Response: This comment is rejected. The State Board concluded that the requirement for borings exclusively for soil sampling is unnecessary, and the requirement has been deleted from the proposed regulations. The comment is not now germane to the proposed regulations.

19. A commenter believes that there does not seem to be any technical justification for drilling two vertical holes adjacent to each underground storage tank, one on each side. It is proposed, therefore, that Section 2645(d) be amended to delete one boring and allow for one soil boring to be drilled on the assumed downgradient of the underground storage tank. [109]

Response: This comment is rejected. The State Board concluded that the requirement for mandatory soil borings exclusively for soil sampling is unnecessary, and the requirement has been deleted from the proposed regulations. The comment is no longer germane to the proposed regulations.

20. It is believed by one commenter that Section 2644(d) should address the need for sampling in the product line and product line/tank union areas. [29]

Response: This comment is rejected. The Board concluded that the requirement for mandatory soil borings exclusively for soil sampling is unnecessary, and the requirement has been deleted from the final regulations. The comment is no longer germane to the regulations because soil sampling is only required when drilling monitoring wells.

21. A commenter proposes to redesignate Section 2644(e) as (d) and revise subparagraph (4) to read: "All borings shall be logged in detail and the soils described according to the Unified Soils Classification System by a competent person trained in soils engineering or an engineering geologist, with the entire project being supervised by a registered civil engineer or registered geologist competent in soils engineering or a certified engineering geologist." [114, 138, 113, 47]

Response: The substance of the comment ~~is rejected and it~~ was incorporated in Subsection 2648(t).

22. A commenter believes that the soil sampling proposed is excessive for a leak detection program where only the presence of the suspected substances need be detected. Should the substance be found, then a precise site assessment investigation will be required. Underground storage tank owners should be allowed the option of compositing samples within a given boring for the purpose of leak detection. [117]

Response: This comment is rejected. The commenter does not indicate how the presence of the suspected substance is to be detected if soil sampling is not performed. Further, if an unauthorized release has occurred, not all samples from a single boring may be contaminated. If only one sample contains a small amount of the contaminant, it may be diluted below detection limits when mixed with other noncontaminated samples.

23. A commenter objected to the clarity of this section because "undisturbed sample" is not defined and the proposed regulations do not recommend a specific type of soil sampler. [99, 102K]

Response: This comment is rejected. An "undisturbed sample" is obtained by certain sampling techniques in which the sampler cuts into the soil and at the same time slips around the soil sample in such a way that the soil sample is not torn into fragments. A drive sampler is an example in which a cylindrical sampler is driven or pushed into the soil and a plug of "undisturbed" soil is caught inside the sampler. This is in contrast to an auger that twists into the soil chewing the soil into fragments which are then scooped in a sample bag. No single sampler can be recommended because different soil characteristics require different types of samplers. These concepts are well known within the industry, and no further explanation in the proposed regulations is required.

24. A commenter wants to have EPA methods identified by test number or method number or at least referenced to locate the correct method. [12, 113, 97]

Response: *THIS COMMENT IS REJECTED. THE PROPOSED REGULATIONS ARE GENERAL  
BECAUSE THERE ARE NO MANY METHODS TO WHY INDIVIDUALLY. FURTHERMORE, SPECIFYING  
METHODS IN THE PROPOSED REGULATIONS WOULD REQUIRE REVISING THE PROPOSED  
REGULATIONS FROM THE A NEW METHOD IS DEVELOPED* Table C has been added to the  
Appendix to the regulations.

25. A commenter proposes that the analysis required under Section 2645(e)(2) should be either EPA-approved methods or methods with lower detection limits that have been demonstrated to be suitable for this type of analysis. In some cases, EPA detection limits are well above those that are acceptable to the regulatory agencies. [97]

Response: This comment is accepted. Subsections 2645(i) and (j) have been revised to include other methods that are similar or superior to EPA methods.

(COMMENT ON MAY 14, 1985 AMENDMENTS)

A commenter requests that the Board deny staff's recommendations to delete the portions of the subsection stating "EPA approved methods or..."; "...methods of..."; and "...precision and accuracy that are...". The Commenter believes that the EPA methods are accepted in the industry and are accurate [214].

Response: This comment is rejected. The references to EPA methods have been deleted so that additional methods endorsed by independent, non-industry related organizations could be included in Table C. Before any method can be used, its suitability for the intended objectives of the monitoring program must be reviewed and approved by the local agency. Subsection 2641(c)(2)(C) requires periodic

laboratory verification of visual and field types of analyses.

26. A commenter indicates that underground storage tanks that have been in the ground for many years will have contaminated soils around them from accumulated spills. This contamination should not be assumed to have originated from the underground storage tank. [12]

Response: This comment is rejected. It is understood that past spills may have contaminated the ground, and this is part of the reason why soil testing is required so that it can be determined whether the underground storage tank can be adequately monitored. While contaminated soil should not be automatically assumed to indicate a leaking tank, neither should it be automatically assumed to result from spillage. The investigation must be conducted to determine the actual cause.

(OAL 10B)

27. Commenters propose that allowable limits of soil contamination must be given for guidelines. A contamination of 0 is totally impossible and of no benefit. If allowable limits for motor vehicle fuels are 10 ppm or 300 ppm, they should be stated and set in a realistic manner. Other substances should also have a limit established [12, 176]. Another commenter indicated that the regulations do not identify how "clean is clean" [94b].

Response: ~~These~~ These comments are ~~is~~ rejected. Setting allowable limits is beyond the scope of these proposed regulations. This activity would come under the California Water Code or sections of the Health and Safety Code.

Furthermore, there can be no absolute allowable limits. If contamination exists, it must be determined whether the underground storage tank is leaking. If the underground storage tank is not leaking, then it must be determined whether the underground storage tank can be adequately monitored in the presence of the contaminated soil.

28. A commenter believes that the determination of "conservative constituents" should be based upon the analysis of the constituents that have been stored in the underground storage tank with respect to toxicity, persistence, and mobility. After these criteria have been evaluated, a determination of which criteria should be made. [102]

Response: In Subsection 2645(k), the word conservative has been changed to persistent. The addition of the words toxicity and mobility are unnecessary because the underground storage tank is not subject to these proposed regulations unless it contains hazardous substances, and mobility is not a criteria upon which the need for monitoring is based.

29. A commenter believes that Section 2645(e)(3)(B)(ii) should be deleted. [97]

Response: Subsection 2645(l) has been revised, and this requirement has been deleted.

(COMMENT ON MAY 14, 1985 AMENDMENTS)

A commenter states that compositing of soil samples is not practical if the prohibition



against diluting samples below analytical detection limits is imposed because the degree of dilution cannot be determined beforehand. The commenter recommends deleting the proposed wording that prohibits excessive dilution. [87]

Response: This comment is rejected. The revision is proposed in response to another commenter's concern that soil samples could be compromised by improper compositing. Staff shares this concern. The effect of the recommendation stated above to delete the proposed wording of this subsection would be to allow the dilution of soil samples below analytical detection limits. The result would be that contaminated soil would be undetected, thereby jeopardizing the effectiveness of the monitoring program. It is true that in most cases it cannot be determined beforehand to what extent dilution of composited samples will occur. However, where the qualifying conditions can be met, compositing offers a means of reducing the cost to the discharger. Therefore, staff believes the proposed additional wording offers a reasonable compromise in which the integrity of the sampling method is maintained while allowing for possible cost savings to the discharger.

(OAL 162B)

A commenter believes that Section 2645 (formerly 2644) should state that background samples are used to distinguish between site contamination and natural hydrocarbons in the soils. [176]

Response: This comment is rejected. The addition recommended by the commenter is a justification for soil sampling and not a regulatory specification. Therefore, the statement would be inappropriate within the text of the regulations. However, the substance of the comment is included on pages 4.22

and 4.112 of the Final Statement of Reasons and is encompassed within Subsection 2645 (I).

(OAL 95)

30. Commenters believe that the possibility exists that a highly contaminated sample near a leaking underground storage tank may be compromised by other samples from non-leaking underground storage tanks at the same site. A decision to composite samples should be made on a site-by-site basis. [120, 176]

Response: ~~This comment is withdrawn.~~ This technique has always been discretionary and remains so in Subsection 2645 (h). However, this section has been modified to avoid the above potential problem.

31. Commenters believe that, in Section 2645(e)(4), that registered soil scientists should be included in the list of professionals competent in soils engineering. A statement should also be added to include "a qualified representative under the supervision of one of the registered professionals". [53, 97, 102, 110]

Response: Subsection 2548(t) has been amended to provide for borings to be logged by a qualified technician under the direct supervision of a professional.

(OAL 54B)

A commenter objects to that the requirement, that soil samples from sites at which the underground storage tank has stored more than one substance be analyzed for at least one constituent from each period of use. It may not be possible to determine what prior constituents were contained in the tank where

prior use, is not known. [87h]

Response: This comment is rejected. A monitoring system designed to monitor the environment surrounding an underground storage tank for evidence of the stored substance seeping into the soil could be rendered incapable of detecting an unauthorized release if the substance stored in the tank is already in the soil or if the presence of some substance previously stored would interfere with leak detection. Clearly, it is of the utmost importance to test for the presence of these substances so that only a monitoring system that is compatible with the site-specific conditions can be selected. In those instances where the record of use is incomplete, it may be necessary to perform a general scan of hazardous substances the tank could have contained. It may be necessary, in some cases, to close a tank if the local agency believes the lack of historical record represents an intolerable risk.

32. A commenter indicates that, since several borings may be made in relatively small areas, the requirement for logging and classifying soils in every boring is excessive and an unreasonable financial burden on the owner. [93]

Response: This comment is rejected. Soils can be very complex, and they are rarely so regular that their characteristics can be projected with confidence over long distances. Therefore, it is believed that all borings should be logged. Further, the proposed regulations have been revised, and mandatory borings exclusively for soil sampling are no longer mandatory.

33. A commenter states that logging and soil classification should be performed at the discretion of the local agency. [93]

Response: This comment is rejected. However, the proposed regulations have been revised to provide monitoring alternatives [Subsection 2641(c)], and borings exclusively for soil sampling are no longer mandatory.

34. A commenter states that, while there is agreement that all wet zones be accurately noted as required in Section 2645(e)(5), there is concern that drilling through these wet zones may result in vertical movement of contaminants which may be in the wet zones. [139]

Response: This comment is accepted, and Subsection 2648(v) has been added and will prevent contamination by this means.

35. A commenter proposed that the following language in Section 2645(g) be modified to read:

"If evidence of an unauthorized release is not detected, and a visual monitoring program pursuant to Section 2640(d) cannot be implemented, then a leak detection monitoring system...." [140]

Response: This comment is rejected. As specified in Subsection 2641(a), soils testing is not necessary if visual monitoring can be implemented and, therefore, soil testing would not be performed if visual monitoring could be implemented. There is no need for the additional language.

(OAL 54A)

36. Commenters believe that soil testing should only be used to determine if hazardous substances currently stored in the underground storage tank are present in the area around the underground storage tank. [87g, 87h, 138b, 138c, 102j, 97, 102h, 139]

Response: This comment is rejected. Health and Safety Code Section 25292(a) [formerly Section Section 25284.1(a)] specifies that a monitoring system installed to monitor an underground storage tank shall be capable of detecting unauthorized releases. It is obvious that a monitoring system designed to monitor the environment surrounding an underground storage tank for evidence of the stored substance seeping into the soil could be rendered incapable of detecting an unauthorized release if the substance stored in the tank is already in the soil. Similarly, some of the monitoring techniques authorized by the statute can be incapacitated by the presence of certain other substances that interfere with the detectors ability to sense the target substance or that physically disable the detector. These interfering substances may occur naturally in the environment (e.g., methane and other volatile organic substances) or they may have been spilled or intentionally spread on the ground surface and infiltrated into the soil; or they may have been previously stored in the underground storage tank which was leaking at that time. Whatever the source, the presence of these interfferring substances can prevent a monitoring system from detecting an unauthorized release. Clearly, it is of the utmost importance to test for the presence of these substances so that only a monitoring system that is compatible with the site-specific conditions can be selected. Consequently, if a monitoring system that is capable of detecting unauthorized releases is to be selected, the need to test for substances that have been previously stored in the underground storage tank is

inescapable.

One commenter indicated that it would not be possible to analyze for at least one constituent from each period of use, as required in Subsection 2645(K), when the prior use of the tank is not known [87H].

**Response:** This comment is rejected.

If the previous use of the tank is unknown, the owner will have to employ a method of analysis that will scan the spectrum of constituents that might be present.

37. Commenters propose to delete the words "ground surface" from Subsection 2645(c) and substitute in the words "tank bottom". [102j, 102k]

**Response:** This comment is rejected. The presence of the stored substance anywhere in the soil surrounding the underground storage tank is a critical factor in determining which types of monitoring can be effective. Spillage may contaminate the surface soil, and leaks may occur anywhere from the top to the bottom of the underground storage tank, including the filler spout and discharge lines. Therefore, soil sampling should begin at the ground surface.

38. A commenter believes that it may be impossible to extract samples of sufficient volume to satisfy Section 2645(g). Therefore, the following wording is proposed: "Soil samples shall be of sufficient volume, if feasible, to perform the designated analyses including soil vapor and soil extract analyses and to provide replicate

analyses, if specified." [87g]

Response: This comment is rejected. The analysis of soil samples is critical to effective monitoring design. The requirements of Subsection 2645(g) are not excessive. Depending on the types of analyses to be performed, it may be necessary to select a larger diameter sampler or to sample over longer intervals.

39. Commenters suggested that the following be added at the end of Section 2645(j):  
"Not all samples collected need to be analyzed if initial tests of tank bottom are negative." [102h, 102k]

Response: This comment is rejected. Liquid leaking from a tank will move primarily downward but with some lateral movement. The amount of lateral movement is a function of soil type and depth (i.e., the deeper the liquid moves, the farther to the side of an underground storage tank the plume extends). Thus, the further a boring is from an underground storage tank, the deeper it must go to intercept a plume. In order to avoid puncturing the underground storage tank, borings must be located at some distance to the side of an underground storage tank. Therefore, a boring must penetrate a considerable distance below the bottom of an underground storage tank in order to intercept a contamination plume. Consequently, all samples should be analyzed.

40. A commenter believes that, in the case of hydrocarbons such as those in motor vehicle fuels, a simple visual and odor test would provide an initial indication of contamination which would be reliable. [87g]

Response: This comment is rejected. The provisions of Subsection 2645(j) do not preclude the use of visual or odor tests; however, if detection of concentrations below the detection limit of visual or odor tests is desired, other means of analysis will be required.

41. Commenters believe that it is not necessary to analyze every soil sample--the costs will be prohibitive. It is technically impractical to composite samples when dealing with volatile organics because there is the possibility of losing constituents. [102, 102h, 102k]

Response: This comment rejected. Subsection 2645(h) provides for optional compositing of samples; and Subsection 2645(l) specifies that if contamination is found, the remainder of soil samples need not be analyzed.

(OAL 54C, 76)

42. Commenters recommended that the language in Section 2645(m) be changed to read, "If soil analysis indicates that an unauthorized release has occurred from the underground storage tank, the permittee shall report the release pursuant to Article 5 of this Subchapter and shall repair or abandon the underground storage tank if it is found to be leaking pursuant to Article 6 or 7 of this Subchapter." [102j, 102k, 138b, 87g, 87h]

Response: This comment is rejected. It is believed the additional wording is unnecessary because Subsection 2645(l) specifies that any contamination found will be assumed to have originated from the underground storage tank unless it can be shown the underground storage tank is not the source of contamination.



43. A commenter notes that Subsection 2645(f) should read "Borings shall be described in accordance with the provisions of Subsections 2648(t) and (u) of this article." [ ]

**Response:** The erroneous reference has been corrected.

## **2646. Vadose Zone Monitoring**

### **Specific Purpose**

The specific purpose of Subsection (a) is to apprise underground storage tank owners that when vadose zone monitoring systems are employed, the systems shall be installed according to the criteria contained in this section in order to ensure effective leak detection.

The specific purpose of Subsection (b) is to specify the general types of vadose zone monitoring that may be employed.

The specific purpose of Subsection (c) is to specify where the casing for a vapor monitoring well should be perforated in order to ensure the greatest opportunity for leak detection in the vadose zone.

The specific purpose of Subsection (d) is to specify the performance standards for vadose zone monitoring systems and to make it explicit that vadose zone monitoring must be designed to give the earliest possible warning of any unauthorized release.

The specific purpose of Subsection (e) is to clarify that subsurface vadose zone monitoring systems should be installed in the backfill surrounding the underground storage tank rather than in "undisturbed," natural ground or engineered fill.

The specific purpose of Subsection (f) is to specify the criteria that must be met in order to use vapor monitoring to ensure that the stored substance, site characteristics,

and method of installation are compatible and that the system will be effective.

The specific purpose of Subsection (g) is to specify the criteria that must be met in order to use any vadose monitoring technique, including vapor monitoring, is to ensure that the monitoring technique is compatible with the stored substance, site characteristics, and method of installation and that the technique will be effective.

The specific purpose of Subsection (h) is to specify that the soil profile and construction details of any excavation constructed to install a vadose zone monitoring system shall be accurately logged so that it can be determined whether the monitoring technique is compatible with the soil characteristics.

#### Factual Basis

Vadose zone monitoring can be one of the most effective means of detecting unauthorized releases from underground storage tanks. In some cases, extremely small quantities of leakage can be detected in a very short time. It is important, therefore, that vadose zone monitoring be available to an underground storage tank owner as an acceptable means of monitoring for unauthorized releases. Section 25292 of the Health and Safety Code [formerly Section 25284.1 (b)] explicitly authorizes the use of vapor monitoring and other unspecified methods of vadose zone monitoring.

Vadose zone monitoring cannot, however, be used indiscriminately and still be effective; certain criteria must be satisfied if there is to be a reasonable expectation that the technique will function effectively. For example, it would be ill conceived to install a vapor monitoring system to monitor a nonvolatile substance. It is

imperative, therefore, that certain criteria be established by which the underground storage tank owners and local agencies can evaluate proposed systems. The proposed regulations include minimum criteria for evaluating proposed vadose zone monitoring systems.

Because of the heterogenous nature of soils, the exact path by which vapor will migrate cannot be predicted. Therefore, it is essential that vapor monitoring wells be constructed so that vapor may enter the well at any level in the soil profile. The proposed regulations specify that the full length of the casing be perforated except where certain structural features of the well preclude their use.

On the other hand, there may be certain characteristics of the stored substance or of the soil from which one may infer the probable general behavior of the substance. To be effective, the monitoring systems need to take these characteristics into account. For example, if the soil profile is comprised of zones that are more permeable than others, vapor detectors installed in the less permeable zones may be less likely to detect an unauthorized release than detectors installed in the more permeable zones. Similar considerations apply to any type of monitoring system. The proposed regulations specify that the proposed monitoring system must take these considerations into account. Furthermore, the proposed regulations specify that, whenever possible, vadose zone monitoring systems be installed within the backfill surrounding the underground storage tank because it is usually more permeable and homogeneous than natural soil; therefore, vapor or liquid is more likely to move faster and in a more direct path than in natural soil.

Large-scale application of vadose zone monitoring to non-agricultural uses is relatively

new and generally unproven for underground storage tank applications. Furthermore, the State's intent to regulate underground storage tanks has stimulated industry to create new devices and systems that are as yet unproven over the long-term and under field conditions. Many of these systems appear promising, while others are suspect. The State Board does not wish to discourage innovative applications of vadose zone monitoring technology, but it has neither the authority nor the resources to access and certify the capability of any proposed system. Therefore, the proposed regulations require that any proposal to use a vadose monitoring system must be supported by documentation that the system is appropriate for the intended use (i.e., the basis for detection is compatible with the characteristics of the substance to be detected), that the limitations of the monitoring system are not exceeded by the site characteristics, and that the materials from which the monitoring system is constructed are immune to deterioration due to attack by the stored substance or any other agent at the site. Additionally, vapor monitoring systems, for which there appears to be the most interest but the least track record, must be field demonstrated before they can be accepted to be effective for the purpose of leak detection monitoring.

Certain characteristics of soil can impair or enhance the effectiveness of a vadose monitoring system. Those characteristics must be observed and recorded so that the designers of the monitoring system may be aware of their presence. Thus, the proposed regulations require that the soil profile revealed by borings for the installation of a monitoring system must be logged. For example, clay layers may obstruct the movement of liquids and vapor, or highly organic zones may adsorb the constituents being monitored, and thereby prevent detection of a leak.

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Comments (In the proposed draft regulations, the requirements for vadose monitoring were contained in Section 2645; but in the modified proposed regulations, the section has been renumbered 2646.)

1. Commenters questioned the State Board's authority to require vadose zone monitoring in all cases. It is believed that the intent of the legislation was that there be a number of potential monitoring alternatives, and the local agencies would determine which monitoring alternative best fit their local conditions. [97, 138, 139]



Response: Section 2641, which has been added to the proposed regulations provides underground storage tank owners and local agencies with monitoring alternatives.

2. Commenters believed that vadose zone monitoring wells will only compound the pollution problem by providing a contamination pathway. It is recommended that a simple pressure test, coupled with a daily inventory control, would be sufficient. [24, 102k]

Response: This comment is rejected. Subsection 2646(d) requires that vadose zone monitoring points be located so as to provide the earliest possible detection of an unauthorized release. Section 2646(e) requires vadose zone monitoring to be located in the backfill surrounding the tank. This will mean that the deepest vadose zone monitoring wells will only extend to the base of the underground storage tank excavation or immediately below it. Consequently, wells for vadose zone monitoring will not provide any more of a pathway for contamination than already exists through the permeable backfill around the underground storage tank.

3. A commenter recommended deletion of the universal requirements for vadose zone monitoring in Section 2646 of the proposed regulations. If it is retained, it should be less ambiguous so that only gasoline and other highly volatile products are covered. [81]

Response: This comment is rejected. Vadose zone monitoring will not be

restricted to only monitoring volatile substances. Vadose zone monitoring techniques, other than vapor monitoring, are available and can be used for nonvolatile substances.

4. A commenter recommended that vadose zone monitoring equipment be tested by the State, and a listing of approved equipment and systems be included with the finalized version of AB 1362. [91]

Response: This comment is rejected. The statute does not authorize the State Board to undertake the testing program suggested by the commenter nor can the State Board ensure that such a listing, if available, would be added to the Health and Safety Code by the Legislature.

5. A commenter recommended that underground storage tanks storing hazardous materials for resale or commercial purposes be covered by the proposed regulations with amendments as outlined at an informal workshop. [91]

Response: This comment is rejected. The commenter did not indicate what amendments to the proposed regulations would resolve the concern expressed. Participants at several informal discussions were told that comments made at such meetings were not being recorded and should be submitted in writing or at a public hearing.

6. Commenters believed that vadose zone monitoring may consist of vapor monitoring or soil-pore liquid monitoring or a combination of both methods. It is noted that the proposed regulations do not mention what detection systems are

acceptable. [89, 98]

Response: This comment is rejected. There are several techniques for monitoring in the vadose zone. The appropriateness of a given technique depends on the type of substance stored and the site characteristics. Therefore, the designer of the monitoring program must analyze the variables and propose the most appropriate monitoring technique.

7. Commenters suggested deleting the entire Section 2646 (vadose zone monitoring) and including it in Section 2647 (ground water monitoring). [4a, 4b]

Response: This comment is rejected. The commenters did not supply any justification or reason for their editorial suggestion. The two techniques are completely different, and combining them would be confusing.

8. A commenter recommended that Subsections 2545(b) and 2647(b) be amended to add, "It can be demonstrated that no ground water exists." This added condition would exempt underground storage tanks from the ground water and vadose zone monitoring requirements. [37]

Response: The proposed regulations have been revised and Section 2641(c) of the proposed regulations specifies monitoring alternatives and ground water depths for which ground water monitoring is permissible. Neither vadose zone monitoring nor ground water monitoring is required in all cases. Section 2648(p) specifies the methods by which the existence of ground water can be determined.

9. A commenter believed that vadose zone monitoring and ground water monitoring, when considered together, are redundant. [99]

Response: This comment is rejected. There are uncertainties regarding the reliability of vadose zone monitoring as discussed in the factual basis for this section and Section 2641. Ground water monitoring at extended monitoring frequencies can serve an essential backup function to vadose zone monitoring and, additionally, provides direct evidence of water quality.

10. A commenter suggested that the language in Section 2646(a) of the proposed regulations be modified to read, "When required by the local agency, owners of existing underground storage tanks subject to this subchapter shall implement a vadose zone monitoring detection monitoring system pursuant to this Section." [138]

Response: The proposed regulations have been revised. The proposed regulations now provide alternative monitoring methods (Section 2641) from which the local agency may specify an appropriate method. Vadose zone monitoring is now required only in certain of the available alternatives.

11. A commenter believes the following language be adopted for Section 2645 (a), "All owners of existing underground storage tanks..., shall..., implement a vadose zone monitoring system." [98]

Response: This comment is rejected. The State Board concluded that mandatory vadose zone monitoring is unnecessary. The proposed regulations provide

monitoring alternatives from which an appropriate alternative may be selected.

12. A commenter proposed that an additional provision be added to Subsection 2646(b) to allow an exemption from vadose zone monitoring for underground storage tanks which contain fluids that are immiscible in water and which have a density less than water, when the depth of the ground water is within 50 feet of the ground surface. [102]

Response: The State Board has modified the proposed regulations to provide monitoring alternatives from which underground storage tank owners and local agencies may choose. As a result of the modifications, Subsection 2646(b) has been deleted from the proposed regulations; this comment is no longer germane to the proposed regulations. Further, the commenter did not offer a rationale for the proposed exemptions.

13. A commenter proposed that the State Board grant flexibility to the local agencies based on the environment surrounding the underground storage tank to minimize the use of vadose zone monitoring and maximize the use of actual physical ground water testing. [102]

Response: This comment is rejected. However, the proposed regulations have been revised to allow more flexibility for the local agencies by providing monitoring alternatives in which vadose zone and ground water monitoring may be used together or singularly.

14. A commenter proposed that an additional Subsection (6) be added to Subsection

2646(b) to provide that if the soil around the underground storage tank has been contaminated by other leakage and the use of vadoze zone monitoring would be inconclusive to adequately monitor and detect unauthorized leaks, the owner would be exempted from implementing a vadose zone monitoring system. [102]

Response: The proposed regulations have been revised to provide monitoring alternatives [Subsection 2641(c)], and the need for vadose zone monitoring will be determined on a site-by-site basis. If conditions as described by the commenter exist, the selection of a monitoring alternative that utilizes vadose zone monitoring would not be approved by the local agency because this method would be ineffective. The State Board has concluded that mandatory vadose zone monitoring is unnecessary. Staff recognizes the problem expressed by the commenter, but the preexistence of contamination is only one of many site-specific factors that the underground storage tank owners and local agencies must consider in choosing appropriate monitoring techniques. To ensure that all relevant factors are considered, Subsections 2646(f) and (g) require a thorough review of critical factors concerning the applicability of any proposed vadose zone monitoring technique.

15. Commenters proposed the following addition to the exemption in Section 2646(b), "The underground storage tank contains only fluids which are immiscible in water and which have a density less than water, and the depth to ground water is less than 5 feet below the underground storage tank invert." [53, 87]

Response: The State Board concluded that mandatory vadose monitoring is unnecessary. Exemptions to vadose zone monitoring have been deleted. The

proposed regulations have been revised to provide monitoring alternatives [Subsection 2641(c)] and the need for vadose zone monitoring will be determined on a site-by-site basis.

16. A commenter recommended that small business owners/operators whose underground storage tanks are located on land not affecting ground water be exempt from vadose zone monitoring. [39]

Response: The proposed regulations have been revised to provide monitoring alternatives [Subsection 2641(c)], and the need for vadose zone monitoring will be determined on a site-by-site basis. Further, a special monitoring alternative (monitoring alternative number 8) for small businesses has been added to the proposed regulations which allows minimal monitoring for a period of three years to allow small business owners time to install an appropriate monitoring alternatives, to close their underground storage tanks, or to install new underground storage tanks under the provisions of Article 3 of this subchapter.

17. A commenter believed that, for small businesses having underground storage tanks adjacent to ground water that is utilized by the local population, the State should pay for the installation of vadose zone monitoring equipment. [39]

Response: This comment is rejected. The statute does not provide for State funding for installation of monitoring systems.

18. A commenter believed that, "For future facilities installing underground gasoline

underground storage tanks, small business operators would [should] be required to install this monitoring equipment at the owner's expense." [39]

Response: This comment is rejected. The installation of new underground storage tanks is regulated under Article 3 of the proposed regulations and does not require the same type of monitoring that is required for existing underground storage tanks (Article 4). In either case, the statute requires the underground storage tank owner to bear the expense of complying with the proposed regulations.

19. A commenter believed that there is an inherent credibility problem in the proposed requirement for full-scale vadose zone monitoring if any portion of an underground storage tank is inaccessible to visual examination, while underground storage tanks which are less than 50 percent underground are exempt from any regulatory requirements. [80]

Response: The proposed regulations have been revised. The definition of "substantially beneath the surface of the ground" now means that at least 10 percent of the underground storage tank volume, including connected piping, is below the ground surface (Subsection 2621). The statute uses the phrase "substantially or totally beneath the surface of the ground" to define the underground storage tanks which would be regulated. It is true that some underground storage tanks are still outside this regulatory process, even though they are resting on or slightly beneath ground surface. Such apparent anomalies are not uncommon in the establishment of a threshold for the applicability of regulatory requirements. Our interpretation of legislative intent concluded that



underground storage tanks resting on the ground and more than 90 percent exposed were not intended to be subject to this legislation.

20. A commenter believed that it is unnecessary to put a 5-foot constraint on vadose zone monitoring because investigations demonstrate that the effectiveness of aspirated vadose zone monitoring systems increases as the water table rises. This increase is independent of soil composition. [55]

Response: This comment is rejected. The commenter does not offer supporting data or evidence to support the statement. Staff is aware of several vadose zone monitoring techniques that would be inoperable under submerged conditions, (e.g., aspirated vapor monitoring systems). A 5-foot separation provides assurance that such systems will not be submerged by fluctuations of the ground water table.

21. A commenter proposed that the exemption in Subsection (b)(2) be amended to read: "Ground water is continuously or periodically above a point 5 feet below the invert of the underground storage tank or vadose zone monitoring is not...." [113]

Response: The State Board has deleted mandatory vadose zone monitoring from the final regulations, and the conditions under which vadose zone monitoring are permissible are left to local agency discretion. As a result of these modifications, the subsection on exemptions has been deleted.

22. A commenter proposed that the exemption in Subection (b)(3) be amended to read: "Vadose zone monitoring is not required if the hazardous substance(s) being stored is not susceptible to detection by vadose zone monitoring methods or if soil conditions make the use of vadose zone monitoring method

impractical." [113]

Response: The State Board concluded that mandatory vadose monitoring is unnecessary, and its use will be determined on a case-by-case basis.

23. A commenter recommends that vadose zone monitoring requirements be made conditional on the availability of a proven method of vadoze zone monitoring". [138]

Response:

This comment is rejected. The proposed regulations have always required that a proposed system be demonstrated to be effective before approval for its use can be granted.

24. A commenter wants to know who determines and how it is determined whether or not the substance being stored is susceptible to vadose zone monitoring. [12]

Response:

The determination is to be made by individuals who are knowledgeable about the theory upon which a given vadose zone monitoring technique is based, the compatibility of the characteristics of the monitoring technique with the substance being stored, and the suitability of the soil characteristics at the site under consideration. The proposed regulations clearly ascribe the ultimate responsibility to the owner. In most cases, the owner or operator will need to

hire a consultant whose staff is competent in these areas. The proposal will be presented to the local agency for review and approval. Upon approval, the local agency will incorporate the conditions for use in the permit.

25. A commenter believed that the following exemption to vadose zone monitoring should be added to the proposed regulations: "Vadose-zone monitoring is not required if the owner has underground storage tanks less than fifteen (15) years old which are corrosion resistant, with cathodic protection, and records do not indicate any prior leakage of motor vehicle fuels." [119]

Response: This comment is rejected. Galvanic and electrolytic corrosion are not the only mechanisms of underground storage tank failure. Underground storage tanks of any age can fail from improper installation, settlement, deterioration of nonmetallic materials, etc. Furthermore, the absence of past leakage does not preclude future leaks.

26. Commenters requested that the provision requiring fully perforated vapor walls be amended by adding a sentence to read: Unless this design can create a conduit for the vertical movement of contaminants, perforations should not span a low permeability zone." [102j, 102k].

Response: This comment is rejected. Subsection (d) requires that vadose zone monitoring points be located so as to provide the earliest possible detection of an unauthorized release. Subsection 2646(c) requires vadose zone monitoring to be located in the backfill surrounding the underground storage tank. Thus, vadose zone monitoring wells will be no deeper than the bottom of the

underground storage tank excavation or immediately below it. Consequently, wells for vadose zone monitoring will not provide any more of a pathway for contamination than already exists through the permeable backfill around the underground storage tank.

27. Commenters proposed deleting from Subsection (d) the words "give the earliest possible warning" and substitute in their place "provide adequate protection". [102, 102k].

Response: This comment is rejected. The suggested wording is too vague and subjective. The existing wording provides a clear idea of the objective of a leak detection monitoring system, but still allows sufficient flexibility to remain practical.

28. Commenters recommended that the provision requiring a subsurface vadose zone monitoring system to be installed within the backfill surrounding the underground storage tank be amended to read: "Subsurface systems shall be located as required by the local agency." [53, 87]

Response: This comment is rejected. Staff believes that vapor will move faster and more uniformly in the porous and more-or-less homogeneous backfill than in most natural, undisturbed soil which tends to be less homogeneous and possibly stratified. Therefore, a leak is more likely to be detected faster if the detectors are in the backfill.

29. Commenters propose the following changes to the provision requiring an on-site

demonstration of a proposed vapor monitoring system: "Vapor monitoring for underground storage tanks may be used in accordance with the following criteria if the vapor characteristics of the stored product are susceptible to detection: Before any method of vapor monitoring is approved for a specific site, or for multiple sites (defined as tanks containing similar types of product situated in similar types of product situated in similar backfill material) it shall be demonstrated by an actual on site demonstration, or in the case of multiple sites, at a single location chosen by the local agency at random, using an appropriate tracer substance, that vapor could actually be detected by the installed system."

[53, 87, 87g, 102, 138b]

**Response:** Subsection 2646(f) has been modified to incorporate the intent of the comment.

30. A commenter believed that the introduction of a tracer or other substance into a site may contaminate the site and prevent vapor monitoring. [117]

**Response:** This comment is rejected. Staff believes that tracer substances can be introduced into a monitoring well in such a way the soil is not wetted and that, after the test, the wells and intervening soil can be purged to remove the tracer material. In addition, tracers which behave like the stored substance but are chemically different (e.g. that do not pose a threat to beneficial uses) can be used.

31. A commenter believed that a spill lock used in conjunction with a fume detection system can provide reliable leak detection. [2]

**Response:** This comment is rejected. The comment did not address the proposed regulations.

32. A commenter believed that the on-site vapor demonstration requirement which requires the installation and testing of an actual system is excessive and that the literature should provide sufficient information regarding system performance.  
[97]

**Response:** This comment is rejected. Many site-specific variables associated with the diffusion of vapor through soils can only be evaluated under the unique soil conditions present at each site. Therefore it is necessary to confirm the compatibility of a proposed monitoring system with site conditions.

33. Commenters stated that, until it can be shown that continuous operation is feasible, continuous vadose zone monitoring should not be required. Monthly monitoring would be more than adequate at a more efficient cost. [53, 87, 97, 102]

**Response:** This comment is rejected. Monthly monitoring is too infrequent to provide adequate leak detection. Furthermore, the monitoring alternative listed in Section 2641 provides appropriate monitoring frequencies for the combinations of the monitoring methods used.

34. A commenter believes that the proposed regulations should indicate appropriate levels for a vadose zone monitoring alarm system which is monitoring for

petroleum hydrocarbon vapors. [99]

Response: This comment is rejected. The different techniques for monitoring the variety of substances stored in underground storage tanks will, because of different characteristics, have different sensitivities. Local agencies should only approve those available techniques that will give the earliest warning of an unauthorized release. The commenter requested that the State Board establish an allowable lower detection limit which is inappropriate for the above reasons and because it would, in effect, condone small leaks.

35. Commenters believe that vadose zone monitoring requirements should permit the option to choose between continuous sensors and testing at periodic intervals at local agency discretion. [78c, 80, 102, 120, 176]

Response: The proposed regulations have been modified to clarify interpretation of "continuous". Because unauthorized releases can occur at any time and because monumental problems are associated with the cleanup of unauthorized releases from underground storage tanks, monitoring should be as near to continuous as is economically and practically feasible. The interpretation of "continuous" monitoring allows cyclic or periodic monitoring throughout each day.

36. A commenter stated that their technical consultant has determined that there are no reportable correlations between vapor levels and the grain size, type homogeneity, and range of moisture content of backfill and native soil and proposes deleting the provision requires on-site demonstration of proposed vapor



monitoring systems [102k]

Response: This comment is rejected. The scientific literature does contain correlations between vapor movement and soil properties. The commenter is referred to "Pesticides in Soil and Water", 1974, Soil Science Society of America and in particular to a paper entitled "Movement of Pesticides in Soil" by J. Latey and W.J. Farmer in which the authors discuss how the diffusion of vapor through soils is dependent on soil properties.

## **Section 2647. Ground Water Monitoring**

### **Specific Purpose**

The specific purpose of Subsection (a) is to apprise underground storage tank owners that when ground water monitoring is employed, the system shall be installed according to the criteria contained in this section.

The specific purpose of Subsection (b) is to prevent the installation of ground water monitoring wells farther than necessary from the underground storage tank(s) to be monitored.

The specific purpose of Subsection (c) is to clarify the depth limits to which ground monitoring wells are to be constructed.

The specific purpose of Subsection (d) is to specify the portion of the boring to be cased and the interval that is to be perforated.

The specific purpose of Subsection (e) is to specify the performance requirements for filter packs and casing perforations.

The specific purpose of Subsection (f) is to specify that well casings shall not be open at the bottom.

The specific purpose of Subsection (g) is to specify the overlap of the filter pack above the perforated interval.

The specific purpose of Subsection (h) is to specify the minimum acceptable inside diameter of casings that may be used and the minimum annular space that is acceptable.

The specific purpose of Subsection (i) is to specify the well interval that is to be sealed.

The specific purpose of Subsection (j) is to specify that the soil profile and construction details of the monitoring well shall be accurately logged.

#### Factual Basis

Section 25292(b)(2) of the Health and Safety Code [formerly Section 25284.1(b)(2)] authorizes the use of ground water monitoring wells for detecting unauthorized releases from underground storage tanks but does not detail design criteria. However, there are numerous methods for designing and constructing water wells, not all of which are appropriate for ground water monitoring wells. The proposed regulations specify minimum criteria for the design of ground water monitoring wells used to detect unauthorized releases from underground storage tanks.

The statute specifies that the well(s) be adjacent to the under-ground storage tank, but does not define adjacent. In many instances, it is difficult to determine exactly where the boundaries of the underground storage tank are, especially if the underground storage tank is old or if the surface of the ground has been paved over. In other instances, fixed obstacles may obstruct the positioning of drilling equipment

immediately adjacent to the underground storage tank. Therefore, in drilling a monitoring well near an underground storage tank, it is necessary to allow a certain amount of leeway between the estimated position of the underground storage tank and the boring location in order to avoid puncturing the underground storage tank. However, placing monitoring wells too far away from an underground storage tank diminishes the capability to detect unauthorized releases. The proposed regulations clarify for the underground storage tank owner that the monitoring well(s) must be as close as possible to the underground storage tank, consistent with safety and avoidance of physical obstacles, but needs not be so close as to be touching or to cause removal of fixed obstacles which overlap the underground storage tank boundary.

Ground water monitoring wells must be constructed so as to always extend below the ground water level so that samples can be obtained at any time. Accurately determining the lowest level is often difficult. It is, of necessity, an estimate. However, experience has shown that the estimate is not always accurate and that a safety factor should be employed. Commonly, a safety factor of 20 feet is used. Therefore, the proposed regulations specify a 20-foot safety factor in determining the depth to which a monitoring well shall extend. Furthermore, the casing interval over which the water level may fluctuate must be perforated so as to allow entry into the casing over the entire portion of the water column into which the well penetrates.

Aquifers are sometimes stacked one above the other in layer-cake fashion separated by intervening clay layers. These clay layers commonly are impermeable or have very low permeabilities and, therefore, form hydraulic barriers between the aquifers if

they are laterally extensive and are reasonably thick. Therefore, in order to prevent the contamination of the underlying aquifers, it is advantageous not to penetrate these clay layers unnecessarily. Sometimes, however, the upper aquifer resting on a clay layer is less than 20 feet thick. Complying with the requirement that wells extend 20 feet below the lowest anticipated ground water level would require penetrating the clay layer upon which the aquifer rests. In order to avoid this undesirable result, the regulations contain a provision that these types of clay layers shall not be penetrated. The well is required to be two feet into the clay layer so as to form a shallow reservoir to provide a sufficient depth of water to be sampled in those instances where the saturated thickness of aquifer above the clay layer may be reduced to a few inches during low recharge periods.

Ground water monitoring wells are often constructed with improperly designed sand or gravel packs, which are placed between the well casing and the boring wall, and improperly sized casing perforations. Some wells are also designed and constructed without a cap or plug in the bottom of the well casing. With time, these wells become partially or totally plugged with sand and are unusable. To avoid this problem, the proposed regulations specify that ground water monitoring wells shall be constructed with engineered filter packs, properly sized casing perforations, and bottom caps or plugs.

The portion of the annular space (i.e., the space between the well casing and the boring wall) that extends above the filter pack will be sealed. The sealing material often infiltrates a certain distance into the top of the filter pack severely reducing its permeability. Therefore, the proposed regulations specify that the filter pack shall extend at least 2 feet above the perforated portion of the casing to prevent the

sealing material from obstructing the uppermost perforations. This is generally an acceptable distance to extend the filter pack to avoid sealing the upper most perforations.

Often in constructing a ground water monitoring well, insufficient annular space is allowed between the boring wall and the casing. Insufficient space can cause improper placement of filter packs and seals because of bridging and the creation of void spaces. Further, a minimum annular space is required if the backfill is to be placed by the tremie methods (i.e., placing through a pipe). The proposed regulations specify a minimum annular space that will minimize improper backfilling of the annulus.

If the annular space between the ground surface and the top of the filter pack is not sealed, cross-contamination from infiltrating leakage may occur. The proposed regulations specify that the annular space above the filter pack must be sealed.

The composition and structure of the various materials in soil and rock determine how a monitoring well must be designed and constructed. These characteristics must be observed and recorded so that the monitoring system can be properly designed and constructed and the monitoring results properly interpreted. Therefore, the proposed regulations require that the soil profile revealed by the well borings be logged.

The first draft of the proposed regulations included a mandatory requirement for separate assurance ground water monitoring wells to provide backup monitoring for other methods of leak detection monitoring. The State Board has determined that, under some circumstances, the benefits of additional assurance ground water

monitoring are not sufficient to justify the added cost. Therefore, the separate obligatory requirements for assurance ground water monitoring for all underground storage tanks have been deleted from the proposed regulations.

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## **Response to Comments**

In the initial regulations ground water monitoring provisions were include in Sections 2646 and 2647. These sections have been revised in the final regulations and ground water monitoring requirements are in Section 2647.

1. A commenter believed that installing ground water wells at every facility using underground storage tanks is not necessary to assure protection of ground water quality. Several wells properly located would provide the necessary water quality information for an entire regional area. [63]

Response: This comment is rejected. In order to provide for the earliest possible detection, monitoring wells must be located as near to the underground storage tank as feasible. Ground water monitoring wells located on a regional basis would, of necessity, be located too far from most underground storage tanks to give early warning. Facilities that are in close proximity may collaborate in establishing a mutual ground water monitoring network in those instances where the distance requirements can be maintained.

2. A commenter indicated that ground water monitoring should be the responsibility of the water boards and utilities. [63, 117c]

Response: This comment is rejected. Section 25292.1(a) of the Health and Safety Code [formerly Section 25284.1(a)] specifies that the owners of underground storage tanks shall establish the monitoring systems, and that the

owner or operator shall monitor the facility thereafter.

3. Commenters indicated that assurance ground water monitoring may cause contamination of the deep aquifers during drilling or due to a faulty seal or surface infiltration. A commenter believed that the assurance ground water monitoring regulation should have provisions to protect aquifers that are beneath the aquiclude. [34, 50, 80, 99, 109, 112, 117, 135]

Response: The proposed regulations have been revised. Subsections 2647(c) and (j) specify that borings will not extend below aquicludes and that wells will be sealed from the top of the filter pack to the ground surface. Subsection 2648(q) provides for complete sealing of unused borings.

4. Commenters indicated that the proposed regulations, as written, would result in each underground storage tank owner monitoring not only his own facility but also all those facilities upgradient. The results of the samples taken would not provide conclusive evidence as to the source. [34, 50, 80, 99, 109, 112, 117]

Response: This comment is rejected. When a monitoring alternative requiring ground water monitoring is installed, underground storage tanks of 1,000 gallons or more are required to have more than one well. One or more of the wells may be installed upgradient, thereby enabling the owner to identify contaminants coming from upgradient. If contamination is detected from an underground storage tank of less than 1,000 gallons, which requires only one well downgradient, an additional well(s) would be used to determine if upgradient contamination is occurring. Nothing in the proposed regulations prevents an

owner from installing upgradient wells on his own initiative. Ground water monitoring does not always provide conclusive evidence as to the source, and additional investigation may be needed.

5. A commenter believed that the assurance ground water monitoring program would generate complex ground water basin data for which most local agencies are not equipped or qualified to handle. [117]

Response: The proposed regulations do not require analysis on a basin-wide basis. Analysis is required only on a site-specific basis.

6. Commenters find no specific language in the Section 25292 of the Health and Safety Code [formerly Section 25284.1] which requires implementation of an assurance ground water monitoring system. It is believed that other statutes impose this responsibility, and it is an undue burden on underground storage tank owners. [4a, 4b, 84, 87, 97, 102, 112, 139]

Response: Section 25292(b)(2) of the Health and Safety Code [formerly Section 25284.1(b)(2)] authorizes ground water monitoring and directs the State Board to develop the proposed regulations to govern its use. Therefore, the State Board believes it is within its statutory mandate to specify how ground water monitoring is to be conducted. However, the State Board has concluded that mandatory assurance ground water monitoring, as a separate monitoring requirement, is unnecessary in all cases and, consequently, the requirement for assurance ground water monitoring has been deleted.

7. A commenter indicated that it should be considered whether or not ground water is potable in the implementation of the ground water monitoring program. [93]

Response: This comment is rejected. The Health and Safety Code statute does not contain language requiring consideration of whether the ground water is potable. Ground water has other beneficial uses and the intent of the statute is to prevent the contamination of ground and surface water as well as the soil.

8. Commenters proposed to delete Section 2647 [see 2640(g)].  
[120, 176]

Response: Section 2647 has been deleted.

9. Commenters believed that Section 2647 is in excess of the State Board's authority by not giving the local agency more discretion in determining the location, number, depth, and sampling frequency of the wells. [53, 87, 112, 138, 139]

Response: This comment is rejected. Section 25292(b)(2) of the Health and Safety Code [formerly Section 25284.1 (b)(2)] is explicit in directing the State Board, not the local agencies, to develop regulations for monitoring alternatives and only empowers the local agency to approve, not specify, pursuant to the State Board's proposed regulations, the location, number, depth, and sampling frequency of wells.

10. A commenter believed the monitoring parameters specifying the quality of underlying ground water should be addressed. [80]

Response: This comment is rejected. The parameters to be monitored are dependent on the type of substance stored and the site conditions. The parameters for a given site must be selected on an individual basis.

11. A commenter suggested that Section 2647 be revised so that no monitoring wells be required for underground storage tanks installed with secondary containment and/or cathodic protection (as described in Sections 2640, 2644, and 2645). [119]

Response: This comment is rejected. The comment addresses methods suitable for protecting new underground storage tanks (Article 3). If an existing underground storage tank can meet all of the requirements for new underground storage tanks that are specified in Article 3 of this subchapter, they need not be monitored as specified in Article 4.

12. A commenter believed that underground storage tanks should not be allowed where ground water is at such an elevation that underground storage tank leaks and resulting ground water or vadose zone contamination could occur quickly. It was proposed that in high risk locations, only above ground storage tanks be allowed. [63]

Response: This comment is rejected. The statute does not provide for the prohibition of underground storage tanks in areas of shallow ground water. Therefore, the proposed regulations cannot include such a provision.

13. A commenter believed that the ground water level referred to in these proposed regulations should mean the ground water level that exists at a facility whether it be a natural condition or an artificially induced condition. [113]

Response: This comment is rejected. The commenter provides no rationale for the proposal. Artificially induced conditions are transient and unpredictable. However, the anticipated ground water levels, whether natural or induced, should be evaluated with regard to the potential for degradation should a leak occur.

14. A commenter recommended that both vadose zone and ground water monitoring should be used if ground water is encountered between 5 and 30 feet from the underground storage tank invert. [97]

Response: Section 2641 has been revised to include monitoring alternative number 2 which requires both vadose zone monitoring and ground water monitoring.

15. A commenter wanted to know what kind of monitoring system and well design are required if a clay layer is encountered at grade and if its thickness is greater than 5 feet. [99]

Response: This comment is rejected. In the case postulated, the design considerations for monitoring wells would be no different than for any other soil type. The 5- foot thick specification in Subsection 2647(c) for a clay layer is only applicable when the aquifer overlies the clay layer.



16. Commenters' interpretation of the statutory language gives local agencies the authority to determine the monitoring methods needed at a site. It is suggested that subsection (a) be changed to read "When required by the local agency ..." [93, 138]

Response: This comment is rejected. The State Board interprets the statute to give the local agencies the authority to approve the monitoring method pursuant to the proposed regulations.

17. A commenter suggested that all owners of existing underground storage tanks, except as provided in part (b) implement an assurance ground water monitoring system. [98]

Response: The State Board has concluded that, in some cases, mandatory assurance ground water monitoring as a separate monitoring requirement is economically unjustifiable; consequently, assurance ground water monitoring has been deleted. Therefore, the need for assurance-type ground water monitoring must be determined on a site-specific basis.

18. A commenter stated that there are no provisions in the proposed regulations for legally conducting drilling or boring operations on property not owned by the tank underground storage owner/operator. [147]

Response: Subsections 2648(b) and (p)(2) have been added to the proposed regulations to preclude the need for drilling outside the owner's property

boundaries.

19. Commenters stated that a better way to prevent underground storage tank owners from installing ineffective ground water monitoring wells is to exempt the construction of such wells if the highest ground water level possible is expected to be deeper than 30 feet below the underground storage tank invert. [53, 87]

Response: This comment is rejected. The commenters do not offer any rationale for the recommendation, and the State Board cannot understand how the depth to ground water can have any influence on the effectiveness of monitoring wells in this case. There is no reason to believe that ground water cannot be contaminated if it is deeper than 30 feet.

20. A commenter stated that ground water monitoring is the principal means of leak detection with regard to Subsection (b)(1). [98]

Response: The commenter merely restates the proposed regulations, and we agree.

21. A commenter believed that there should be no requirement for installation of assurance ground water wells if the depth to ground water is greater than 100 feet. Vadose zone monitoring will detect leaking before this depth is reached. [97]

Response: Based on comments indicating that drilling by dry drilling techniques becomes difficult below about 100 feet, the proposed regulations have been

revised to include monitoring alternatives, none of which require ground water monitoring below 100 feet.

22. Commenters suggested changing the language of the proposed regulations so that ground water monitoring is not required if "The highest ground water level expected during the life of the facility is at a depth greater than 50 feet." [87, 102, 109, 119, 138]

Response: This comment is rejected. Case studies have revealed that ground water as deep as 130 feet has been contaminated by underground storage tanks. Therefore, the 50-foot limit is not justifiable.

23. A commenter believed that when Subsections 2647(c)(1) and 2646(b)(2) are considered together, they are in conflict with the exemption provisions. It appears that a ground water monitoring well will always be required, whether as the primary means of leak detection or as part of the assurance ground water monitoring program. [97, 99]

Response: The State Board has concluded that, in some cases, mandatory assurance ground water monitoring as a separate monitoring requirement is economically unjustifiable and consequently, the requirement for assurance ground water monitoring has been deleted. With this revision, the proposed regulations no longer contain the apparent contradiction.

24. A commenter urged adopting the practice of control of corrosion of buried steel underground storage tanks by requiring protective coatings and an effective

cathodic protection system [36].

Response: This comment is rejected. The statute does not authorize this practice as a substitute for monitoring. Coatings and cathodic protection do not monitor for unauthorized releases.

25. A commenter states that Section 2647 should be revised to reflect the best available technology and not be arbitrary in choosing the monitoring methodology for a facility. [116]

Response: This comment is rejected. The proposed regulations provide monitoring alternatives [Section 2641(c)] from which an owner may choose the most appropriate monitoring method. The use of best available technology is not prohibited, and the selection of a monitoring alternative is to be based on appropriateness and not be arbitrary.

26. A commenter indicated that a 200-foot well could cost approximately \$10,000, which may be prohibitive to small or large businesses. [99]

Response: The State Board has concluded that, in some cases, mandatory assurance ground water monitoring as a separate monitoring requirement is economically unjustifiable; consequently, assurance ground water monitoring has been deleted. Furthermore, the proposed regulations have been revised to provide monitoring alternatives [Section 2641(c)], none of which require drilling deeper than 100 feet, which commenters have indicated is about the maximum

for hollow stem augers. This will reduce the cost for ground water monitoring significantly.

27. A commenter believed that there should be no requirement for installation of ground water wells if the depth to ground water is greater than 200 feet. Vadose monitoring will detect the leak before this depth is reached. [97]

Response: This response is rejected. The proposed regulations have never required ground water monitoring below a depth of 200 feet.

28. Commenters indicated that wells completed to 200 feet would be ineffective in rapidly detecting a leak and may, in turn, cause cross-contamination. [87, 102]

Response: In the first draft of the proposed regulations, wells completed to 200 feet were not intended to be the primary means of leak detection. They were intend as backup to other types of leak detection. In the proposed regulations, the maximum mandatory depth of concern has been revised to 100 feet and seals are required to prevent cross-contamination.

29. A commenter recommended that Subsection (b) be rewritten as "(b) Only vadose zone monitoring should be required if ground water is greater than 30 feet below the tank invert."

Response: This comment is rejected. Staff believes that ground water could be degraded if the vadose zone monitoring system should fail or be bypassed, even

when ground water is greater than 30 feet below underground storage tank invert. The State Board's experience has shown that underground storage tanks can degrade ground water at depths greater than 100 feet.

30. A commenter recommended that a horizontal distance that can be reasonably expected to be within the property limits of the permittee be substituted for the 500-foot requirement in Subsection (b)(3). [53, 138]

Response: Subsections 2648(b) and (p)(2) have been added to the proposed regulations to preclude the need for drilling outside the property boundaries.

31. Commenters proposed that Subsection (b)(3) be amended to provide a further exemption from assurance ground water monitoring if the positioning and operation of drilling equipment interferes with the property rights of another. [87, 102, 110]

Response: Subsections 2648(b) and (p)(2) have been added to the proposed regulations to preclude the need for drilling outside the property boundaries.

Comments:

32. A commenter questioned the apparent discrepancy between the maximum distance between underground tanks and "leak detection" monitoring wells on the one hand and between underground tanks and "assurance" monitoring wells on the other hand. [99]

Response: The difference in the maximum distances for "leak detection" and "assurance" wells was based on the different monitoring functions served by such wells, as explained in the initial SOR. However, the regulations have been modified in a manner which resulted in the deletion of the requirement for separate "assurance" monitoring wells. Therefore, comments regarding technical aspects of "assurance" monitoring systems were rejected.

33. A commenter suggests that ground water monitoring be limited to those situations where the historic high ground water is 40 feet below the surface or less. [117]

Response: This comment is rejected. The commenter offers no reasons to believe that ground water at depths greater than 40 feet cannot become contaminated. The Board's experience has shown that ground water deeper than 100 feet can be degraded by underground tanks.

34. A commenter recommends adding Subsection (b) (5) as follows:

"Alternative leak detection methods are utilized which detect loss of

material from primary container." [4a, 4b]

Response: The substance of this comment is accepted, and Section 2641 has been revised to include alternative methods of monitoring.

35. One commenter believes that subsection (c) should be revised to read:

"Assurance ground water monitoring networks shall be established according to the criteria set forth by the local agency." [138]

Response: This comment is rejected. Health and Safety Code Subsections 252845.1(b)(2) authorizes the Board to specify monitoring alternatives in regulations. The Board believes that establishing the criteria for the implementation of the monitoring alternatives is an integral part of developing the regulations. Therefore, the Board has established the criteria in these regulations.

36. One commenter believes that sampling should be done at water surface for substances which accumulate there. [93]

Response: This comment is accepted, and Subsection 2647 (d) specifies that the perforated interval of the casing be such that sampling can be performed at the water surface.

37. A commenter believes that assurance ground water monitoring should be established according to the following criteria:



"1. . . . , anticipated ground water elevation is between a depth of 5 feet below the tank invert and 100 feet below the surface of the ground . . . ,

2. . . . , anticipated ground water elevation is between 100 and 200 feet . . . , the well shall extend to the base of the aquifer or to a depth of 200 feet whichever is lessor."

Response: This comment is rejected. Commenters indicated that the depth limit for dry drilling is about 100 feet. Therefore, the regulations have been modified and the maximum mandatory depth for ground water monitoring wells is 100 feet.

38. A commenter suggested that the calculation for depth requirement in Subsection (c) be changed to provide more certainty for drilling contractors. [138]

Response: This comment is accepted, and Subsection 2646 (c) has been deleted. The revised depth requirements are contained in Subsection 2641(c).

39. Commenters suggested that the last sentence of Subsection (c) read:

"The ground water monitoring wells shall extend 20 feet below the top of the saturated aquifer in order to provide assurance monitoring pursuant to Section 2647 during periods of low ground water." [119, 138]

Response: This comment is rejected. In order to insure that the monitoring

well can be sampled when the ground water level is low, it is necessary to base the depth of a monitoring well on the lowest anticipated water level. A well designed with the commenters' criterion may be too shallow to be below the water level during periods of low ground water.

40. A commenter proposes that three wells should not be required if sufficient knowledge of local hydrology is demonstrated to permit fewer. In any case, one well for every 30 feet of tank should be required. [97]

Response: This comment is accepted and the mandatory requirement for three wells has been deleted.

41. A commenter states that the requirements incorrectly assume that for each underground storage tank, the product contained within the tank is the same, the rate of ground water movement and its depth is the same, and the permeability of the geologic sediments surrounding the tank are the same. Further, if fewer wells could suffice, then the owner should have the ability to implement such a program without having to comply with the variance requirements of Article 8 of these regulations. [102]

Response: This comment is rejected. The regulations are explicit in referring to different types of stored substances, ground water levels, and differences in permeability. The rate of ground water movement is not mentioned. The number of mandatory wells are the minimum number staff believes are necessary to adequately monitor a facility.

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42. Commenters stated that the statute does not authorize the Board to require both vadose and ground water monitoring. [53m 87, 102, 125]

Response: This comment is rejected. Subsection 25284.1 (b)(2) of the Health and Safety Code directs the Board to specify the monitoring alternatives in regulations. Nothing in the statute prohibits the use of both vadose zone and ground water monitoring. However, the regulations have been modified to include monitoring alternates which include both types of monitoring, one or the other, or neither.

43. A commenter proposes rewording the second sentence of Subsection (c) to read:

"However, wells shall not extend through clay layers  
that are at least 5 feet thick and below the water table." [102J]

Response: This comment is accepted and Subsection 2647(c) has been revised to include the suggested wording.

44. A commenter notes that Subsection (c) (1) requires that perforations start 10 feet above the highest ground water elevation; whereas, Subsection (d) (6) (B) requires that perforations start at the tank bottom elevation. The perforation requirements for (d) (6) (B) should be the same as those for (c) (1). [113]

Response: This comment is accepted. The cited subsections have been deleted, and the specifications have been revised to remove the contradiction and the

revisions are contained in Subsections 2647 (d) and 2648 (p) (4).

45. A commenter believes that if a water table normally fluctuates between 95 and 135 feet below ground surface, three monitoring wells would be required to a maximum depth of 100 feet. Under this situation, the wells would probably be dry most of the time. It is proposed that one well, downgradient, should extend to the base of the aquifer or to a depth of 10 feet below the lowest anticipated water table but not to exceed 200 feet. [113]

Response: This response is accepted in part. The regulations have been modified to require that ground water monitoring wells extend 20 feet below the lowest anticipated water level.

46. A commenter noted in regard to subsection (c) (2) that where the highest anticipated ground water is at a depth greater than 100 feet, ground water monitor well placement is generally ill-advised, both because of the difficulty of installation and the greater lag time between leakage and discovery. [53]

Response: This comment is accepted. The final regulations do not require mandatory ground water monitoring below a depth of 100 feet.

47. One commenter states that vapor monitoring (subsection (d)) should not be used "under ground water conditions such as this." [12]

Response: This comment is rejected. The context of the comment does not relate to either the text of the initial or the final regulations. Taken alone, the

comment is too vague to understand the commenter's point, therefore, we are unable to respond.

48. One commenter suggested that Subsection (d) be reworded to read as follows:

"Ground water monitoring well casing shall extend to the bottom of the boring and be factory perforated from a point five feet above the bottom cap to a point ten feet above the highest anticipated unconfined ground water level. Monitoring wells penetrating into a locally confined aquifer should be perforated in the confined zone and the confining layer should be sealed with an appropriate material." [102, 102J]

Response: This comment is rejected. Staff concurs that the confining layer should be sealed. The final regulations already provide for this in that the well must be sealed from the ground surface to the top of the filter pack, and in this case the perforations will be within the confined zone and below the confining layer.

49. One commenter suggested that Subsection (d) be reworded to read as follows:

"Ground water monitoring well casings shall extend to the bottom of the boring and be factory perforated from a point approved by the person specified in Section 2648 (t) to the bottom cap." [87g]

Response: This comment is rejected. It is important to the success of the

monitoring system that monitoring wells be perforated so that samples may be obtained that are representative of the surface of the ground water body. Therefore, it is important that the perforations extend above the highest anticipated ground water level. The comment offers nothing to refute this concept.

50. A commenter suggests that Subsection (d) should be changed to eliminate the distance (5 feet and 10 feet) so that it reads:

"Groundwater monitoring well casings shall extend to the bottom of the boring and be factory perforated from the point above the bottom cap to a point above the highest anticipated groundwater level. [138b]

Response: This comment is rejected. Determining the highest anticipated ground water will, in most cases, depend on judgment. Requiring that perforations extend 10 feet above the highest anticipated ground water is accepted practice as a reasonable safety factor against errors in judgment.

51. A commenter proposes the following language to Subsection (d):

"To establish accurately the depth of ground water under an underground storage tank facility, local agencies shall require documentation of the groundwater elevation utilizing existing wells within 500 feet of the facility, or as demonstrated by a certified professional. If an exploratory boring is constructed to determine ground water depths, it shall be constructed as follows:" [53, 87]

Response: This comment is rejected. The proposed additional wording " . . . or as demonstrated by a certified professional." is too vague as to what constitutes adequate demonstration or in what discipline the professional should be certified. The language included in Section 2648 (p) requires a positive determination of ground water level. This is necessary because ground water levels can vary significantly over short horizontal distances and therefore actual measurements are required.

Comments:

52. A commenter indicated that, in regard to Subsection (d), it would be more reasonable to allow the water table to be estimated using two wells, given the generally flat nature of water tables and the improbability of having three wells all being located within 500 feet. [113]

Response: This comment is rejected. However, staff concurs that the original language was too restrictive. Accordingly, Subsection 2646(d) has been deleted, and Subsection 2648(p) has been added, requiring existing ground water levels to be determined by water level measurements taken from all wells within 500 feet of the site but with no specific number specified.

53. A commenter believed that, in regard to Subsection (d), if more distant wells (within 1 mile) indicate that the water table is in excess of 250 feet beneath the surface at the underground storage tank location, this should be deemed adequate evidence to exempt assurance ground water monitoring, including exploratory boring. [113]

Response: This comment is rejected. However, the State Board has concluded that, in some cases, mandatory assurance ground water monitoring as a separate monitoring requirement is economically unjustifiable; consequently, assurance ground water monitoring has been deleted. An exploratory well may still be required under Subsection 2648(p) if there are no wells within 500 feet of the facility and if ground water monitoring is utilized. This is necessary because ground water levels can change significantly over short horizontal distances.



Moreover, the proposed regulations do not require wells deeper than 100 feet.

54. A commenter wanted to change 500 feet to 1,500 feet in Subsection (d), given the improbability of three existing wells within 500 feet. [12]

Response: This comment is rejected. The State Board believes that removing the minimum number of wells to be measured rather than increasing the radius of search better resolves the problem. Therefore, the proposed regulations have been revised, and the requirement for using three wells has been deleted in the revised wording in Subsection 2648(p), and no specific number of wells are required.

55. A commenter recommended that no distance be specified in Subsection (d). [109]

Response: This comment is rejected. However, the requirement for at least three wells within 500 feet of the facility has been deleted, and Subsection 2648 (p) now only requires measurements in all wells within 500 feet.

56. A commenter proposed that requirements for determining the depth to ground water, exploratory boring, sampling requirements, and sample handling be deleted. [138]

Response: This comment is rejected. The commenter provided no justification for such a proposal. These are essential elements of a ground water monitoring program.

57. A commenter proposed that Subsection (d) be amended to allow for written, certified estimates of ground water depth from a hydrogeologist or other professional personnel, where practical, in lieu of existing well analysis and exploratory borings. [102]

Response: The comment is rejected. In order for ground water conditions to be known well enough to estimate accurately, there must be numerous wells in the area from which the knowledge is acquired; therefore, there is no need to use estimates when there are available wells from which to obtain data directly. Actual data is always superior to an estimate. If no wells are nearby, any estimate must be considered a rough guess, and an exploratory well would be necessary.

58. A commenter states that, if the ground water is below 5 feet deep below the tank invert, Section 2646 states you do not need ground water monitoring. However, Section 2647 states you have to install a ground water system anyway. These sections seem contradictory. [89]

Response: This comment is rejected. The commenter had failed to distinguish between ground water monitoring used to verify that other monitoring systems used for primary leak detection are functioning satisfactorily and ground water monitoring used as the primary leak detection technique. However, the State Board has concluded that, in some cases, mandatory ground water monitoring as a separate monitoring requirement is not economically justifiable, and it has been deleted as an unconditional requirements.

59. Commenters believe that "large area" needs to be defined. The following language is proposed for Subsection (d)(1) "An exploratory boring shall be drilled in the anticipated downgradient direction from the underground storage tank. More than one exploratory boring may be required where geohydrologic conditions are complex or where the surface area above the underground storage tank at a facility exceeds two acres." [53, 87, 102]

Response: This comment is rejected. The language pertaining to exploratory borings has been revised, and the reference to any area consideration has been deleted.

60. A commenter believed that Subsection 2647 (d)(3) should be expanded to include more details regarding "dry drilling technique." [109]

Response: This comment is rejected. The objective of an exploratory boring is, in part, to detect wet zones and the water table. This is readily accomplished by using dry drilling techniques but almost impossible using drilling fluids. Dry drilling merely means using drilling methods such as hollow stem augers that do not use drilling fluid.

61. A commenter suggested that the phrase in Subsection (d)(3) "by appropriate drilling practices" should be replaced by "by a dry drilling technique". [110]

Response: This comment is rejected. Borings at underground storage tank sites will be used to determine ground water levels and to obtain soil samples.

Boring techniques that use drilling liquids will mask the point at which ground water is encountered and may contaminate soil samples. This requirement is now found in Subsection 2645(e) which requires dry drilling down to the saturated zone but allows other drilling techniques to be used if the boring cannot be advanced by dry drilling methods and when the boring is advanced below the water level.

62. Commenters recommended that Subsection (d) (5) be amended as "The exploratory boring shall be drilled to a depth of 30 feet below the tank invert if ground water is not encountered at a depth of less than 30 feet below the tank invert." [53, 87, 97, 114]

Response: This comment is rejected. Where monitoring alternatives that utilize ground water monitoring are selected, the monitoring wells should monitor any ground water that is within the depth in which it is technologically and economically feasible to install wells. The depth within which ground water must be monitored has been revised from the former maximum depth of 200 feet to 100 feet as described in Section 2641. This modification was made to conform with the ordinary maximum limit of hollow stem augers which are the most common method used for drilling without drilling liquids.

63. A commenter proposed deleting the 200-foot requirement in Subsection (d)(5) and substituting it for 50 feet. [102]

Response: This comment is rejected for the same reason as cited in the response to comment. [62]

64. A commenter indicated that, in regard to Subsection (d)(5) drilling wells as deep as 200 feet into a potable aquifer or through a confined layer of clay have the potential to create a conduit for contamination. A registered civil engineer should determine how deep to drill. [109b, 199, 204, 160]

Response: This comment is rejected. Any potential for contamination of an aquifer by a well is independent of the amount of penetration into the aquifer. Any potential for contamination through a monitoring well has been anticipated and will be minimized by the provisions of Subsection 2647(i) which requires ground water monitoring wells to be sealed above the filter pack. We would like to monitor all ground water regardless of depth; however, the practical limit is based on general economic and technological considerations. It is unnecessary, therefore, to have a civil engineer determine monitoring depths.

65. A commenter suggested, in regard to Subsection (d)(5), to reduce the required depth of drilling to 100 feet. [97]

Response: The proposed regulations have been modified accordingly.

66. A commenter proposed that, should contamination be found at depths of 50 to 200 feet, the proposed regulations assume the overlying owner to be responsible unless he can prove otherwise. This is considered excessively burdensome to the owner. ~~WY~~ [98]

Response: This comment is rejected. Any upgradient underground storage tank

will also be monitored under the proposed regulations. Analysis of monitoring data for the upgradient underground storage tanks will indicate whether those underground storage tanks are causing the contamination.

67. Commenters propose that the regulations be modified to allow the use of 2-inch inside diameter casing for a well conversion. [53, 86, 87, 97, 102, 114].

Response: The proposed regulations have been revised to allow the use of 2-inch inside diameter casing.

68. A commenter proposed that Subsection (d)(6)(B) be rewritten to provide for perforation of the exploratory well only for some point above the air-water interface (to allow for seasonal groundwater variations) to a point either 10 feet below historical low ground water level or to the top of a competent aquitard.

Response: Subsection 2647(c) has been revised to incorporate the comment.

69. A commenter suggests the following revisions to Subsection 2646(a) through (d):

"(a) All owners of existing underground storage tanks., shall, except, as provided for in subsection (b) of this section, implement a ground water leak detection monitoring system.

(b,2) A vadose monitoring system has been implemented and ground water is and will remain at least 5 feet below the invert of the underground storage tank.

(c) At those sites at which vadose zone monitoring is feasible and the ground water level fluctuates above and below a point 5 feet below the underground storage tank invert, a combination of ground water monitoring and vadose monitoring shall be used. The ground water monitoring wells shall extend 20 feet below the lowest anticipated groundwater level in order to provide assurance monitoring.

(d) When the level is continuously above a point 5 feet below the underground storage tank invert, monitoring shall be used as the principal leak detection technique, and vapor monitor will also be used in conjunction wherever possible." [98]

Response: This comment is rejected. The suggested revisions merely delete all references to other portions of the proposed regulations but for no apparent reason. The inclusion of these references avoids confusion.

70. A commenter proposed that the following be inserted before Subsection (e), "In the absence of local water agency monitoring guide-lines, which include evaluation of local hydrogeology, the principal ground water...". [4A, 4B]

Response: This comment is rejected. For local agencies that have not enacted their own ordinances pursuant to Section 25291.1 of the Health and Safety Code, [formerly Section 25288] the proposed regulations serve as their guidelines. Local agencies that have enacted ordinances are not subject to the proposed regulations.

71. Commenters stated that Section 2646 should be scaled down in scope to initially require as few as one monitoring well as an initial test of site conditions, with greater latitude for owners to design the well(s) to find out existing conditions. [81, 119, 116, 102]

Response: This comment is rejected. The State Board believes that the criteria set forth in the regulations are the minimum necessary for effective monitoring and that Section 25292(b)(2) of the Health and Safety Code [formerly Section 25284.1(b)(2)] directs the State Board to set such criteria through the proposed regulations. In most cases, one monitoring well is insufficient to corner the area in which a plume may migrate.

72. Commenters recommend that Subsection (e) be changed to read "The primary ground water monitoring network shall be designed and constructed



according to the criteria set forth by the local agency." [138, 139]

**Response:** This comment is rejected. Subsection 25292(b)(2)] of the Health and Safety Code [formerly Section 25284.1(b)(2)] specifically authorizes ground water monitoring and Subsection 25299.3(a) of the Health and Safety Code [formerly Section 25288.2(a)] authorizes the State Board to develop regulations implementing standards for Section 25292 of the Health and Safety Code [formerly Section 25284.1]. The statute does not empower the local agencies to develop criteria.

73. Commenters recommended that Subsection (e)(1) provide the following requirements:

"(a) Use of three ground water monitoring wells per underground storage tank is excessive. One well per 30 feet of underground storage tank is adequate.

(b) Wells should be downgradient of underground storage tanks and should not be directly beneath the underground storage tank because of the nature of contaminant movement in soil and ground water.

(c) All wells should be located as close as possible to the underground storage tank or the perimeter of the facility."

It is further suggested to delete any reference to the words "arcs" and "radii of influence" because they are used incorrectly as presently written. [97, 102]

Response: This comment is rejected. The proposed regulations have been modified, and the criteria for the number of wells is based on the size and number of underground storage tanks. Therefore, recommendation (a) is no longer germane to the proposed regulations; recommendation (b) is rejected because upgradient wells are needed to monitor baseline conditions; and the wording of recommendation (c) was incorporated in the proposed regulations. Further, the commenters do not explain how the words "arcs" and "radii of influence" are used incorrectly.

74. A commenter indicated that the proposed well location requirements of Subsection 2646(e) are difficult to apply since underground storage tanks in view and underground storage tank clusters are rectangular. [117]

Response: This comment is rejected. However, the State Board has concluded that the mandatory number of ground water monitoring wells in the first draft of the proposed regulations were not economically justifiable. In the ensuing modification of the proposed regulations, the specifications for the locations of the well are more clearly explained and criteria are based on size and number of underground storage tanks rather than distance between underground storage tanks.

75. Subsection (e)(1) appears to assume, that for any given underground storage tank location, there is no information available concerning the direction and rate of ground water movement or its depth. It is suggested that the second sentence of subsection 2646(e)(1) should be amended to read "Additional borings shall be

installed at closer angular spacings if the straight line distance between wells exceeds 30 feet, or if the underground storage tank contains hydrocarbons, or is subject to daily inventory control, if the straight line distance between wells exceeds 40 feet or a greater distance as specified by the local agency." [87, 53]

Response: This comment is rejected. The suggested amended language bears no connection with the expressed reason for the amendment. There is reason, therefore, to justify the suggested change. However, the proposed regulations have been modified to reduce the number of required wells. In so doing, references to distances between wells have been deleted.

76. A commenter proposed to amend Subsection (e)(4) to provide that, in wells where the depth to ground water is greater than 5 feet, the seal shall extend to a depth of at least 5 feet. Where the depth to ground water is less than 5 feet, the surface seal shall be at least the thickness of the surrounding pavement or 6 inches, whichever is greater. [102, 87, 53]

Response: This comment is rejected. However, the proposed regulations have been revised to clarify that surface seals shall extend from the ground surface to the top of the filter packs in order to ensure against cross-contamination and surface drainage.

77. A commenter indicated that, as written, the requirement in Subsection (e)(4) precludes the use of alternative sealing techniques. [113]

Response: This comment is rejected. The commenter did not identify the alternative sealing techniques and, therefore, staff cannot evaluate their merits.

78. A commenter proposed that monitoring wells for motor vehicle fuels be excluded from the purging requirement, and monitoring shall consist of collecting a surface water sample using a clear bailer to detect floating product. [102]

Response: The requirement for purging has been deleted from the proposed regulations. However, the method of sampling has been left to the discretion of the local agency.

79. Commenters believed that, under some conditions (e.g., very high yielding aquifers), it may not be possible to obtain the 15 feet drawdown as required in Subsection (e)(5). In coastal areas where water tables are near the surface, pumping rates could be hundreds of gallons per minute. The ability to get NPDES permits or waste discharge permits for sewers may hinder compliance with this requirement. [113, 87, 53]

Response: The requirement has been deleted.

80. Commenters believed that perforating the well along its entire length as required in Subsection (e)(6) could provide a means for leaked material to migrate through the well and into the ground water. The well should end at the perched water and should not puncture the aquitard. The following language is proposed:

In the absence of any competent aquitard or perennial perched ground water zone underneath the underground storage tank, the ground water monitoring wells shall extend to an elevation that is at least 10 feet below the underground storage tank invert or to the ground water-air interface, whichever is the lesser. In the event a competent aquitard or perched ground water underlays the underground storage tank, the ground water monitoring well shall extend only to that aquitard or perennial perched water zone. The ground water monitoring well should not puncture a competent aquitard underlying the regional water table. The well shall be perforated at the air-water interface of the perched water or the ground water and at points above and below if necessary to account for any seasonal or other fluctuation of ground water levels." [53, 87, 102]

Response: The proposed regulations have been modified to prohibit a well from penetrating a competent aquitard below the aquifer and to require that the well be sealed from the ground surface to the top of the filter pack. The specific language is rejected but the concept is accepted.

81. Commenters proposed that Subsection (f) be modified to provide that ground water shall be monitored monthly or more frequently as required by the local agency, taking into consideration the substance stored in the underground storage tank, the character of the underlying strata, and the apparent rate of ground water flow beneath the underground storage tank. Commenters believe weekly monitoring of is excessive. [119, 97, 116, 102, 53, 87]

Response: The first draft of the proposed regulations has been revised to

include monitoring alternatives, only some of which require ground water monitoring. Of these alternatives, one leaves the monitoring frequency to the local agency's discretion and the others require either monthly or semi-monthly monitoring. Staff believes acquiring all the data needed so that monitoring frequency can be based on the factors cited would be prohibitively expensive.

82. A commenter wanted a continuous leak detection and alarm system which is located in monitoring wells adjacent to an underground storage tank and approved of by the local agency. [78]

Response: This comment is rejected. The specified monitoring frequencies are minimums and, therefore, continuous leak detection systems are not excluded. Further, the first draft of the proposed regulations have been revised so that, depending on the monitoring alternative selected, monitoring frequency will be at the local agency's discretion, of either monthly or semi-annually.

83. A commenter wanted to know who determines if sampling and analysis is applicable [Subsection (f)]. [110]

Response: The local agency will make the determination based on whether the well is fitted with a permanent down-hole sensor; if not, ground water samples must be obtained from the well and analyzed.

84. A commenter is concerned that Subsection (f) only requires that records from sampling efforts be kept by the permittee but not reported anywhere. [117]

Response: The commenter's statement is only partially true. Under the provisions of Article 5 of this subchapter, the operator must report all unauthorized releases within 24 hours.

85. A commenter wanted to know what are the sampling, analysis, and reporting procedures pertaining to Subsection (f). What are the allowable limits? [12]

Response: Sections 2641, 2647, and 2648, and Article 5 of the proposed regulations contain the information desired. Setting allowable limits, if any, is not within the scope of the proposed regulations.

86. A commenter proposed that the following sentence be added to Subsection (d)(6)(C) "This section does not apply to monitoring systems installed for underground storage tanks containing hydrocarbon products." The reason for the addition is that, in a case of a truly confined aquifer, hydrocarbons will be detected on the perched zone above the uppermost confining aquitard. [53,

**Response:** This comment is rejected. The State Board has concluded that, in some cases, mandatory ground water monitoring as a separate monitoring requirement is not economically justifiable; therefore, the proposed regulations have been modified to deleted mandatory assurance ground water monitoring. As a result of this modification, the cited subsection has been deleted.

87. Commenters recommended that Subsection (d)(7) be amended to require backfilling and sealing of exploratory wells if the boring does not reveal ground water within a depth of 30 feet below the underground storage tank invert. [53, 102]

**Response:** This comment is rejected. However, the first draft of the proposed regulations has been modified to provide monitoring alternatives that relate to different depths to ground water. Therefore, the depth to which an exploratory boring must be drilled is dependent on the monitoring alternative is selected well deeper than 30d feet may be required. The proposed regulations require that any boring not converted into a well be completely sealed.

88. A commenter proposed that Subsection (d)(6)(C) be modified to allow for only a 20-or 30-foot perforation zone immediately below the aquiclude at the top of the aquifer. [102]

**Response:** This comment is rejected. The first draft of the proposed regulations have been modified to include monitoring alternatives. In



accordance with the provisions of these alternatives, the requirement that the exploratory boring extend to the bottom of a confined aquifer has been deleted. However, the depth to which the well must extend is dependent on what the lowest anticipated water level may be. In some cases, it may be greater than 30 feet.

89. Bentonite slurry is too undefined and there is an increased potential for an improper seal. [102]

Response: This comment is rejected. The design of the slurry has been left open because site-specific conditions must be taken into account.

90. A commenter proposed to amend Subsection (d)(7) to provide that all exploratory borings or soil sample collection borings be abandoned in accordance with California Department of Water Resources Bulletin No. 74, Well Standards. [102]

Response: This comment is rejected. The requirements contained in the proposed regulations are minimums and are intended primarily for use in those cities and counties that have not adopted the State Water Well Standards. Subsection 2647(d) has been deleted.

91. It is recommended that Subsection (d)(6)(C) be changed to prohibit the penetration of confined aquifers by either exploratory or monitoring wells. [41]

Response: This comment is rejected. Confined aquifers may be permeable to some stored products, may have permeable windows, or may be penetrated by

improperly sealed wells; all of which may allow a contaminant to degrade a confined aquifer. Monitoring of the confined aquifer may, therefore, be necessary; and the proposed regulations require that the monitoring well be properly sealed to prevent cross-contamination.

92. Commenters proposed changes to Subsection (e): "Wells should be sampled semi-annually at a minimum. More frequent sampling may be required by the local agency. Samples shall be taken after sufficient volumes of water have been removed from the well pursuant to the procedures set forth in Procedures Manuel for Ground Water Monitoring at Solid Waste Disposal Facilities, Doct. SW-611, pp. 20-21 EPA, 1977. Sampling equipment shall not donate, capture, mask, or alter the sample constituents." [53, 87, 102]

Response: This comment is rejected. The proposed regulations require test sampling procedures be according to EPA procedures or procedures that are equivalent or superior to EPA procedures. Under the proposed regulations, monitoring frequency is dependent on the monitoring alternative selected.

93. A commenter recommended that there is no need for semi-annual monitoring once a baseline has been established, vadose monitoring shows no evidence of a leak, and there has been no spill of a hazardous substance. [110]

Response: This comment is rejected. Baseline levels may vary with time and periodic monitoring is necessary; under some conditions, vadose zone monitoring may not be sufficient because of the type of system used onsite conditions; and baseline monitoring provides information that is independent of whether a spill

has occurred and, in some instances, provides the standards by which a spill is detected.

94. A commenter proposed the following language to Subsection(e): "Underground storage tanks storing substances with specific gravities less than water are exempt from the requirement to remove sufficient volumes of water before sampling." [113]

Response: This comment is rejected. Purging wells for tanks storing substances that are less dense than water and are immiscible in water still serves to remove contaminants that may have been introduced accidentally into the well from the surface. Further, the proposed regulations do not prohibit the owner from taking an additional sample before the well is purged.

95. A commenter saw no need to analyze for individual components. It is proposed that the State Board should allow an initial screening for contamination with requirements to identify specific components if the initial screening is positive. [139]

Response: This comment is rejected. The comment is too vague and nonspecific for staff to evaluate the effectiveness of the proposal.

96. Commenters proposed that the requirements for ground water wells be the same as for soil borings (e.g., not analyzed for all constituents stored in the underground storage tank). [12, 97]

**Response:** This comment is rejected. However, the proposed regulations have been modified to allow more flexibility in the parameters selected for analysis.

97. It is proposed that Subsection (g) be reworded to "Filter packs shall normally extend two feet above the top of the perforated zone." [102j]

**Response:** This comment is rejected. The commenter does not provide justification or support for the contention that having the filter pack 2 feet above the perforated zone may not be desirable in some circumstances.

98. A commenter believed that there is almost no place in the State where a 200-foot assurance monitoring well would be required. It is believed that there are too many low permeability zones between the ground surface and a potential 200-foot water zone to act as a barrier. [102c]

**Response:** This comment is rejected. The commenter offers no supporting data for the supposition. Further, as a result of modifying the proposed regulations to delete the requirement for mandatory assurance ground water monitoring, the depth of interest has been reduced from 200 feet to 100 feet.

99. A commenter did not understand what "monitoring" for leaks from existing underground storage tanks means and believes that visual or factory tests for volatile hydrocarbons using a transparent bailer sample is adequate and that laboratory analysis is only necessary if there are other indications the underground storage tank is leaking. [114]

Response: The proposed regulations have been revised so that the types of monitoring required and descriptions of the monitoring techniques are contained in Article 4. Visual or olfactory testing transparent bailer is permissible as specified in Subsection 2641(c) and Sections 2647 and 2648. However, visual and olfactory methods are subjective, and sensitivity can vary dramatically from individual to individual. Furthermore, an individual's sensitivity to a substance can vary with time and changes in circumstances. Therefore, when subjective field tests are permitted, a sample must be periodically analyzed by objective laboratory methods to confirm the validity of field testing. In addition, there may be circumstances in which a local agency may determine that the sensitivity obtainable by subjective tests is insufficient.

100. A commenter wondered whether surface drainage will enter a well in those instances where casing perforations extend to the ground surface as specified in Subsection 2647(d) and proposes that the no perforations be allowed above the seal [168b].

Response: This comment is rejected. The proposed regulations do not permit perforations to extend above the seal. The proposed regulations specify that perforations shall extend to the bottom of the seal or to the ground surface if ground water is within 10 feet of the ground surface. The only instance in which there would not be a surface seal is when ground water is within 10 feet of the ground surface. Under such circumstances, the vadose zone is thin to non-existent and surface drainage readily infiltrates through the vadose zone into the ground water. Any infiltration through the well will be indistinguishable from surface infiltration.

(OAL 121, 138A)

A commenter stated that should contamination be found at great depths of 50 to 200 feet, the proposed regulations assume the overlying owner to be responsible unless he can prove otherwise. Obtaining proof can be excessively burdensome to the owner [98, 122].

Response: This comment is rejected. The proposed regulations were amended so monitoring wells do not have to be deeper than 100 feet in addition to the requirements in Section 2647. Also any upgradient underground storage tank will also be monitored under the proposed regulations. Analysis of monitoring data for the upgradient tanks will indicate whether these tanks are causing the contamination. However, the tank owner has the burden of providing data to document claims of non-responsibility and burden of demonstrating compliance with contaminant and monitoring requirements. If the detection system designed to intercept and detect tank leakage (using indicator parameters appropriate for stored substance) shows presence of substances which could reasonably be expected to signal tank leakage, then the local agency is justified in pursuing enforcement of corrective action unless the tank owner can prove that the tank isn't leaking and hasn't leaked.

(OAL 90C)

101. A commenter believes that owners should acquire permits from the local water well permitting agency. [117c]

Response: This comment is rejected. These regulations do not exempt underground storage tanks owners from any other regulations governing the required activities. Therefore, it is unnecessary to include extraneous permitting requirements.

(OAL 138B)

A commenter recommends that the regulations contain the "Responsibility of Performance" portion of Santa Clara Valley Water District's "Monitoring Guidelines", which appears to be a practical approach under prevailing conditions in Santa Clara County [122]. This comment is rejected. The commenter implies that the guidelines will work in Santa Clara County. The State Regulations will not be implemented in Santa Clara County because the County is enforcing its own underground storage tank regulations in accordance with Health and Safety Code Section 25299.1. Furthermore, each county should have the flexibility in deciding how to handle the "Responsibility of Performance" issue.

ection 2648. Construction and Sampling Methods

Specific Purpose

The specific purpose of Subsection (a) is to specify that the materials from which sampling equipment is constructed and the materials from which monitoring wells are constructed must not react with the stored substance so as to interfere with or preclude analyses for unauthorized releases of the substance or damage the materials from which the well and sampling apparatus are constructed.

The specific purpose of Subsection (b) is to specify that materials used for backfilling around wells shall be evaluated for the deleterious effects specified in Subsection (a).

The specific purpose of Subsection (c) is to further specify that all drilling tools shall be cleaned so as to prevent contamination of the boring by contaminated drilling equipment.

The specific purpose of Subsection (d) is to prevent contamination of a well by the use of hardware that has been contaminated prior to installation.

The specific purpose of Subsection (e) is to prevent the contamination of samples by the use of contaminated sampling equipment.

The specific purpose of Subsection (f) is to prevent the contamination of a well by the introduction of interfering constituents contained in drill fluid additives that would affect analytical results.



The specific purpose of Subsection (g) is to specify that representative samples of drill fluid additives, grout, and filter media be retained for possible future analysis.

The specific purpose of Subsection (h) is to specify that ground water monitoring wells be properly developed.

The specific purpose of Subsection (i) is to specify that well heads be equipped with a water-tight cap that will prevent the infiltration of contaminated surface water or other surface spills.

The specific purpose of Subsection (j) is to specify that wells be enclosed in surface security structures that will assure the integrity of the well.

The specific purpose of Subsection (k) is to provide permanent well identification and construction data at each well.

The specific purposes of Subsections (l), (m), (n), and (o) are to specify the criteria for the requirement of surface seals for vapor and other vadose zone monitoring wells.

The specific purpose of Subsection (p) is to specify the means by which the highest anticipated ground water level and the existing ground water level shall be determined.

The specific purpose of Subsection (q) is to prevent an abandoned boring from

becoming a conduit for cross-contamination.

The specific purpose of Subsection (r) is to prevent the unused portion of a boring from becoming a conduit for cross-contamination.

The specific purpose of Subsection (s) is to prevent the placement of well seals by top dumping.

The specific purpose of Subsection (t) is to specify the soil classification system that is to be used to describe the soil profile and to specify the minimum qualifications for soil loggers.

The specific purpose of Subsection (u) is to specify that wet zones encountered in the vadose zone shall be noted and recorded.

The specific purpose of Subsection (v) is to specify that if evidence of contamination is encountered in the vadose zone, the professional in charge shall determine whether drilling should be suspended to evaluate the implications of the contamination.

#### Factual Basis

Section 25292(b)(2) of the Health and Safety Code [formerly Section 25284.1(b) (2)] authorizes the use of ground water and vadose zone monitoring wells but does not detail general construction or sampling methods. There are many extraordinary procedures that must be observed in the construction and sampling of monitoring wells that are not used for routine water wells. Additionally, it is the State Board's

experience that the practices used by different well drillers for routine water well construction may vary widely. Some of these practices may be considered good practice and others are unquestionably poor practice. While the potential problems that can be created by these circumstances are relatively easy to prevent by informal means on a local scale, there must be formalized minimum criteria established for a state wide program if it is to be successful. Section 2648 provides minimum criteria that will provide a minimum level of standardization for monitoring underground storage tanks and will provide guidance for the local agencies.

Many of the hazardous substances stored in underground storage tanks are highly reactive and may damage the materials from which a well or sampling equipment is constructed. In other instances, reactions may occur in which constituents from the construction materials and sampling equipment are leached out into the ground water or reactions with the hazardous substance will occur and result in conditions that prevent or interfere with the detection of the hazardous substance. If these reactions occur, the monitoring well could be physically destroyed or ground water samples retrieved from the well could be altered so as to give erroneous results. It is essential, therefore, that the proposed regulations contain minimum performance standards designed to protect the physical integrity of the well and the chemical integrity of the samples.

Another common way in which the effectiveness of monitoring wells can be compromised is by the unintentional contamination of the well by substances that adhere to or are mixed with construction materials or other objects that are put into the well. These substances may be similar to or identical with the substance that the monitoring well is intended to detect, or the substance may be something that

interferes with the chemical analysis for the target substance.

For example, if a boring being constructed to monitor gasoline underground storage tanks was fitted with a well casing which had had gasoline spilled on it, the gasoline from the casing would contaminate the ground water. When the well was eventually sampled, the presence of the gasoline could easily be interpreted as indicating the underground storage tank was leaking. Therefore, the proposed regulations contain provisions to assure that any hardware that is introduced into the well is thoroughly cleaned beforehand. For components of other construction materials that are fabricated at the site such as grout, concrete, etc., which cannot be cleaned the proposed regulations require that representative samples of these components be saved for future testing in the event the samples from the well produce anomolus results.

In order for monitoring wells to function properly, they must be adequately developed. Developing a well is a special process by which the water in the well is forced to surge back and forth through the well perforations and filter pack so that any fine sand, silt, and clay that can enter the well is forced into the well and pumped out. This prevents this material from accumulating in the well under normal operating conditions and eventually plugging the well. It also reduces the time samples have to be filtered before analyses can be performed and removes material that could interfere with the analysis.

However, well development is often ignored or improperly performed, thereby reducing the effectiveness of the well. In order to minimize such practices, the proposed regulations specifically require the wells to be properly developed.

The security of the well head is as important for water wells as it is for monitoring wells. Outright vandalism can destroy a monitoring well, and undetected sabotage or vandalism can result in erroneous monitoring results. In order to prevent such occurrences, the proposed regulations require a water-tight well cap and require that the well head be enclosed in a secure structure. In addition, the well identification must be permanently affixed along with pertinent well construction data that could be helpful to well samplers.

Water well seals are an essential part of monitoring well construction. These seals prevent the monitoring well from being contaminated from surface drainage entering the well from the ground surface or from cross-contamination between aquifers. However, these seals add cost to the construction of a well. Therefore, it is less costly to install monitoring wells if seals are only required where needed. If they are not properly located, they can reduce the effectiveness of a well. Therefore, the proposed regulations allow the local agency to specify whether seals in vapor wells that are in the backfill around the underground storage tank are necessary because this backfill already may provide more of a passage way for surface contaminants than the well does. If surface seals are required, the proposed regulations specify that they shall not extend below the top of underground storage tank because if the seal extended below the tank, any unauthorized release would be impeded from entering the well. Seals for other types of vadose zone monitoring installations must be determined on a site-specific basis.

To further reduce the chance for surface or cross-contamination, the proposed regulations require that any boring or portion of a boring that is not used for monitoring purposes shall be sealed. These provisions are necessary because borings

which have been improperly backfilled with permeable material have been responsible for causing or accelerating contamination of underlying aquifers. This occurs because the natural soil structure or layers of low permeability soil restrict the downward percolation of liquids. When a boring is made, the soil structure and low permeability layers are disturbed and their capability to retard the downward movement of liquids is reduced. Therefore, when contaminants moving laterally through the soil profile intersect the improperly abandoned borings, they move rapidly downward, sometimes directly contaminating an underlying aquifer that would not otherwise have become contaminated. In order to prevent this type of contamination, a boring or portion thereof that is to be abandoned cannot be indiscriminately backfilled. The regulations require that any abandoned portion of a boring must be backfilled with impermeable bentonite so as to seal the boring against downward movement of contaminants. Bentonite consists mainly of aluminum silicate clays, used in various adhesives and cements, and makes a good sealant because of its impermeability. Likewise, if the backfill material is dumped into the boring, bridging may occur as backfill materials are caught between the sides of the boring instead of settling completely. This creates unfilled spaces that provide pathways for accelerated downward movement. In order to prevent bridging, the sealing material must be placed by the "tremie" method in which the sealant flows through a pipe lowered to the bottom of the boring. As the boring is filled, the pipe is slowly raised so the end of the pipe is always just at the surface of the rising sealant.

This section also contains minimum criteria for logging borings and for determining ground water levels. The criteria for soil logging are necessary because there are numerous soil classification systems (e.g., Unified Soil Classification System, AASHTO Soil Classification, Federal Aviation Agency). In order to accurately interpret the

subsurface from boring logs, the method of classification must be known.

Unfortunately, boring logs do not indicate the system used, if indeed any system at all was used. Therefore, there is a clear need to ensure that an appropriate system is used and that all parties use the same system. The proposed regulations prescribe the minimum criteria necessary to ensure that soil logs can be correctly interpreted.

The criteria for determining depth to ground water are necessary because there is a general tendency to rely on whatever records are available whether or not they are appropriate, incomplete, or out-of-date. Accurate ground water level data are necessary because the selection of an appropriate monitoring alternative is predicated on the accurate determination of the highest and lowest anticipated ground water levels as well as the existing ground water level. Therefore, the proposed regulations prescribe the minimum standards for the use of existing records that is needed to assure that the levels are accurately determined. If adequate records are not available, a boring must be drilled to obtain the information.

When borings are drilled at existing underground storage tanks it is vitally important that the logger pay strict attention to the cuttings being removed from the boring so that any wet zones that occur above the water table may be noted and the source of the moisture determined. If the wet zone is natural soil moisture, it probably indicates a perching zone on which moisture percolating from above is temporarily trapped. It is in zones such as this that any leakage from the underground storage tank could first be observed, thereby providing an early warning of a leak before it reaches ground water. However, these zones must be accurately noted so that perforated casings can be placed in these zones so that the moisture can enter the well.

If on the other hand, the moisture is leakage from the underground storage tank, there may be no need to drill further because it will have to be determined whether the underground storage tank can continue to be used. Therefore, the proposed regulations specify that the professional in charge must be informed of the suspected leakage so that he may take the appropriate action.

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### Comments

1. A commenter believed that Subsection (a) should include a sentence allowing the use of poly vinyl chloride, polyethylene, and polypropylene casings for monitoring wells at a hydrocarbon storage facilities. [53, 87]

Response: This comment is rejected. The proposed regulations do not prohibit any specific materials. If these materials are compatible with monitoring for hydrocarbons, they are acceptable, and no specific mention is needed in the proposed regulations.

2. A commenter proposed that Subsection (a) be amended to require that well materials (e.g., additives, cement, bentonite, and grouts) be retained after construction for testing should anomalous results be found which necessitate the analysis. [102]

Response: A provision has been added requiring that samples of these materials be retained for 90 days for possible testing.

3. Commenters suggested that Subsection (c) be reworded to read, "All drilling tools shall be cleaned immediately before a boring is started." [102, 138, 87, 97]

Response: The requirement that drilling tools be "cleaned immediately after a boring has been completed" has been deleted and only cleaning before a boring is started is now required.

4. Commenters suggested that the following sentence be added to Subsection (g), "This section is not applicable to wells for underground storage tanks containing hydrocarbons." [87, 53]

Response: This comment is rejected. The proposed regulations have been revised and now only require that samples of these materials be retained for possible testing. The commenters did not offer any data to support their position and have not considered that construction materials can become contaminated after they are manufactured. Underground storage tanks containing hydrocarbons are as susceptible to this type of contamination as any other type of underground storage tank.

5. A commenter believed that analyses of well materials should not be required if compositions of these materials are available from the manufacturer. [97]

Response: This comment is rejected. The commenter had not taken into account the possibility of these materials becoming contaminated during manufacture or between the time they are manufactured and the time they are used. However,

the proposed regulations have been revised and only require that samples of these materials be retained for possible future testing.

(OAL 75)

6. A One commenter wanted to know "what is proper development" per Subsection (h) [12], while another commenter recommended deleting the performance standard [102k].

Response: This comment is rejected. A performance standard of 10 ppm settleable solids has been established as a measure of proper development. There are many techniques for developing a well, only some of which are effective for certain types of filter packs and natural soil conditions. A properly developed well is one in which the appropriate method of development (removal of loose sand and silt that could clog the well or perforations) is used for a long enough time that the well will not become clogged with filter material or the natural soil and that water pumped from the well achieves the performance standard.

7. Commenters believed that discretionary decision-making should be left to the local agency/supervising geologist. Therefore, Subsection (h) should be revised to read; "All ground water monitoring wells shall be appropriately developed as determined by the supervising geologist or his on-site representative." [87g, 102j, 138b, 102k]

Response: This comment is rejected. If monitoring wells are to function properly over the long-term, it is extremely important that they be constructed with the same attention to detail as a water well. Proper development is a critical part of well construction that is frequently omitted or is performed in a slipshod manner. The proposed regulations allow the method of development to be discretionary in order to accommodate site-specific conditions and achieve the performing standards. The performance standard of 10 ppm settleable solids is

commonly used for water wells.

8. A commenter proposed that Subsection (j) be deleted since it has no regulatory meaning. [97]

Response: This comment is rejected. Subsection (j) has regulatory meaning in that it requires that some form of security be provided to ensure the integrity of the well and therefore samples taken from the well.

9. A commenter believes that locking caps should not be required in a facility which limits or maintains strict security. [97]

Response: The commenter's suggestion has been included in the proposed regulations.

10. A commenter believed that problems will be created with all the holes drilled into the ground which will be direct avenues for contamination. [89]

Response: This comment is rejected. Monitoring wells can be constructed with seals that will prevent cross-contamination. Seals for ground water monitoring wells are specified in Subsection 2647(i) and for vadose zone monitoring wells in Subsections 2648(l), (m), (n) and (o).

11. A commenter suggested that Subsection (m) be rewritten such that the owner shall have on file all the information required under Section 2648. [99, 110, 102]

Response: This comment is rejected. Staff believes that having this information readily available at the well will help prevent mistaking wells; will aid persons doing the sampling by providing accurate information on the well diameter in order to prevent oversized samplers from becoming stuck in casings; and will aid in sampling by having well construction data, such as perforations intervals, immediately available to the sampler. These types of problems occur frequently with unmarked wells. Furthermore, the requirement can be met inexpensively.

12. A commenter believed that the surface seals for vapor wells required in Subection (m) must be completed below a free water zone, but not extend below the top of the underground storage tank. [168]

Response: This response is rejected. The commenter offers no data to support the suggestion. Further, if the surface seal extends below the free water surface, there is no way for vapor to enter the well; therefore, the well would be ineffective as a vapor well; and, therefore, the well would be ineffective as a vapor well.

13. Commenters proposed rewording of the second sentence of Subsection (p) to read; "Historic high ground water levels shall be determined by a review of water level measurements on record for wells within a reasonable distance from the site." [102j, 102k]

Response: This response is rejected. The suggested wording is unacceptable because the word "reasonable" is open to interpretation and may be improperly interpreted. However, in response to the comments, the wording of the proposed



regulations has been revised so that wells within only a one mile radius of the site need be reviewed.

13.1 A commenter said Subsection (P) should be modified to require reviewing of well records where possible since some records may not be made available to everyone [102k]. This comment is accepted and the regulations were amended to reflect this concern.

(OAL 74)

A commenter proposed rewording the second sentence of Subsection (p) to require reviewing of "all available" water level or well records since some records may not be made available to everyone due to claims of confidentiality [102k]. The regulations were amended to resolve this concern.

(OAL 41)

14. A commenter proposed that Subsection (p) be deleted because it imposes an unrealistic requirement which presumably is to be accepted as an alternative to previous unrealistic drilling requirements. The commenter also asks who is to review the water level measurements and which records are to be reviewed [80c].

Response: This comment is rejected. The commenter offers no rationale to support the charge that the proposed regulations are "unrealistic". However, the radius of review has been reduced to one mile. Staff has reviewed the proposed regulations and can find no reason to believe they are unrealistic.

It is prudent to review historic ground water levels within a specific radius of

the underground storage tank to assure that the appropriate monitoring alternative is used. Ground water elevations vary from location to location with the difference in ground water elevation between locations divided by their horizontal distance equal to the gradient. Natural ground water gradients seldom exceed 0.001 and for the one mile radius specified in the regulations this would equal approximately a five (5) foot differentiation between the point of interest and the ground water elevation at the one mile radius. Staff considered such a potential difference as the maximum allowable for determining the applicability of the monitoring alternatives and the one mile limit was set for the outer most well location when considering a limited number of wells. Conversely, in more populated areas, a larger number of wells of closer proximity to the underground storage tank would be available. It is not necessary nor do the proposed regulations require that every well within the one mile radius be considered. Only a sufficient number as determined by the local agency on a case by case basis need be considered by the tank owner or their designated representative.

The tank owner is ultimately responsible for supplying the required information; however, California law requires that such work be performed by a licensed geologist or civil engineer. The records to be reviewed are all available records that may be obtained from any source. These include water districts, flood control districts, universities, Department of Water Resources, Department of Health Services, federal agencies, etc.

15. **A** Commenters suggested that the last sentence in Subsections (p) be deleted, Subsection (p)(1) through (3) should be deleted, and the second sentence in

Subsection (p) should read; "Historic high ground water levels and existing ground water levels shall be determined by a professional geologist, civil engineer, or engineering geologist who is registered or certified by the State of California."  
[87g]

Response: This comment is rejected. Ground water level records, if available, should be used to determine ground water levels. Staff knows of no other way to obtain this knowledge unless new borings are made. This information is critical to effective monitoring and should not be left to intuition or engineering judgement if records of direct measurement are available. Furthermore, the highest ground water levels of record may have occurred long before the project professionals become familiar with the area. If no records are available from wells within one mile of the site, the project professional may have to review records from wells further than one mile away in order to estimate historic high ground water at the site.

16. A commenter proposed that if the State Board chooses to leave Subsection (p)(1) through (4) in the proposed regulations, it should be amended as follows: "The exploratory boring shall be direct ~~or~~ ly downgradient if possible and as near as possible to the underground storage tank within the boundaries of the property encompassing the facility but no further than 500 feet from the underground storage tank." [87g]

Response: The commenter's suggestion is incorporated into the proposed regulations.

17. A commenter believed that the cost for locating and measuring the high number of water wells in Southern California will be excessive. [168]

Response: This comment is rejected. The commenter had evidently misunderstood the proposed regulations. The proposed regulations state that the highest (historic) anticipated ground water level shall be determined by a review of ground water level records which are available from state and local water agencies. It does not mean that the wells must be physically located and measured. In addition, the proposed regulations have been modified to require that only records for wells within one mile of the site, rather than five miles, need be reviewed.

18. A commenter asked if it is practical to require a boring be converted to a ground water monitoring well if ground water is encountered, considering that the size of the hole may be different in order to extract water for monitoring purposes? [168]

Response: This comment is rejected. Borings to determine the presence of water generally do not need to be as large as borings for obtaining water samples. However, it is relatively simple to ream or enlarge a small diameter boring to the size necessary for ground water sampling purposes.

19. Commenters proposed changing the word "minimum" in Subsection (p)(3) to "maximum". Commenters further proposed deleting the reference to alternative number 5 in this subsection since alternative number 5 would not apply to this

subsection. [102k, 91c]

Response: This comment is rejected in part. If the proposed regulations were changed as suggested, an underground storage tank owner would not have specific guidance as to the minimum depth required. This would not fulfill the intent of this subsection which is to accurately determine the depth to first ground water in order to determine the applicability of monitoring alternatives which have different monitoring requirements depending on the depth to first groundwater. Additionally, alternative number 3 cannot be used if first groundwater is less than 100 feet deep. However, staff believes that, in some instances, local agencies will want to protect ground water that occurs in deeper aquifers. The statutes do not restrict the depth of monitoring wells. Therefore, the proposed regulations are worded to give the local agencies the prerogative to require deeper investigations. Subsection (p)(3) has been revised to delete alternative number 5 from the text.

20. Subsection (p)(3) requires that exploratory boring wells shall be drilled to "first perennial ground water or to a minimum depth of 100 feet." The commenters believed that requiring exploratory boring to 100 feet is unnecessary. Documentation, was presented supporting this comment.

Response: This comment is rejected. Staff has reviewed the supporting information submitted by the commenter and believes it to be insufficient for the following reasons:

- a. The information does not offer any supporting evidence that 500

gallons is a realistic estimate of the normal volume of leakage to expect from underground storage tanks. In fact, the commenter had characterized a leak of less than 6,000 gallons as "minor." (See "Gasoline in Ground-water", J.E. McKee, Finley B. Lavery, and R.M. Hertel; 1972; Journal Water Pollution Control Federation.)

- b. The commenter's calculations were not included in their report and therefore cannot be reviewed.
- c. The oil retention capacity factor (R) used by the commenter in the equation for calculating the depth of penetration was the largest R-value possible and results in the shallowest penetration of leakage. The commenter offered no evidence to indicate such an R-value is representative. Furthermore, the reference indicates that the equation gives only a "... very rough approximation of the spread of pollution in the event of an accident".
- d. The report did not consider the effect of the infiltration of precipitation and the potential for infiltrating vadose zone water from carrying the contaminant deeper than the depth to which the substance initially penetrates.
- e. The report only addressed gasoline and did not consider the many other substances stored in underground storage tanks.
- f. San Francisco Bay Regional Board staff investigations in their region

have revealed unauthorized releases in 70 to 90 percent of the underground storage tanks investigated. These unauthorized releases range from a few gallons to 21,000 gallons with many ranging from 1,000 gallons to 5,000 gallons and with vertical penetrations of gasoline of up to 130 feet. Approximately 80 percent of these gasoline underground storage tanks were being monitored by inventory reconciliation.

The deficiencies in the report coupled with actual field experience lead the State Board to doubt the efficiency of 50- foot limits. Field experience has shown that unauthorized releases from underground storage tanks have penetrated to depths of over 300 feet. It would, therefore, be justifiable to require monitoring for ground water that occurs at depths in excess of 100 feet. However, commenters have indicated that most hollow stem auger drilling is limited to depths of 100 feet or less. Based on this mechanical limitation, the State Board selected a depth of 100 feet as the maximum mandatory limit for monitoring wells.

(OAL 87A)

21. It is proposed that, in addition to the individuals mentioned in Subsection (t), professional ground water hydrologists with a minimum of 5 years experience and trained in the uniform soil classification also be included in this subsection. [117, 177]

Response: The proposed regulations have been revised to include unregistered

personnel, such as professional ground water hydrogeologists, as long as certain conditions are met.

22. A commenter asked if Subsection 2648(p)(3) was in conflict with Section 2641(d)(3)? In Section (d)(3), ground water for a monitoring system for multiple underground storage tanks is required to be within 1,000 feet of all underground storage tanks, where as in Subsection 2648(p)(3), they are required to be within 5,000 feet of the facility. [168b]

Response: This comment is rejected. The two subsections are not in conflict. The specification for 1,000 feet in refers to ground water monitoring wells whereas the specification of 500 feet in refers to exploratory borings.



## 5. Article 5, Release Reporting Requirements

## Article 5. Release Reporting Requirements

### Section 2650. Applicability

#### Specific Purpose

The specific purpose of Section 2650 is to establish reporting procedures for all unauthorized releases as required by Sections 25294 and 25295 of the Health and Safety Code [formerly Sections 25284.3 and 25284.4, respectively]. Unauthorized releases are divided into two groups depending on the threat to contaminate the soil and water as a result of the release. They are those which must be reported to the local agency within 24 hours and those which must be recorded and reported in the operator's monitoring reports.

#### Factual Basis

The statute requires reporting and requires the State Board to report to the Legislature. Specific detailed reporting requirements are necessary because the State Board is required to accumulate and assimilate information on unauthorized releases statewide. In order for the State Board to accomplish this task, the information must be categorized and submitted in a uniform manner.

The underground storage tank construction and monitoring standards were developed such that all unauthorized releases can be identified and reported. By requiring underground storage tank owners and operators to report all unauthorized releases to those agencies with responsibility to require cleanup, the public can have some

assurances that the release will be cleaned up such that public health and water quality will be protected. These reporting requirements are mandated by Sections 25294 and 25295 of the Health and Safety Code [formerly Sections 25284.3 and 25284.4, respectively].

#### Comments

1. Commenters suggested that the word "immediate" in Subsection (d) is vague. [87, 53, 102]

Response: This subsection was replaced with Subsection (c). "Immediate" was replaced with "...within 24 hours after the release has been, or should have been, detected...."

2. A commenter suggested that the proposed regulations should detail the reporting sequence and clearly identify the responsibilities of involved agencies. [111]

Response: This comment is rejected. The reporting requirements are stated in Sections 25293, 25294, and 25295 [formerly Sections 25284.2, 25284.3, and 25284.4, respectively] and are clarified in the proposed regulations. We do not believe that further clarification is necessary. Once an unauthorized release occurs, various agencies will become involved pursuant to their authorities under different laws and regulations. It is inappropriate to repeat these authorities in these proposed regulations since they go beyond the scope of the statute on which these proposed regulations are based.

3. A commenter requested that the reduced reporting requirements for recordable releases be applicable to any underground storage tank with a secondary container, as well as to new underground storage tanks as defined in Article 2. [140]

Response: This comment is rejected. New underground storage tanks have a broad definition under this subchapter. The purpose of this definition was such that only existing underground storage tanks which met the requirements of the statute for new underground storage tanks would be afforded less stringent requirements. The rationale for this reduced reporting is that new underground storage tanks have less potential to contaminate the environment. An underground storage tank with a secondary container may have all the protections afforded a new underground storage tank and may be a threat to water quality. An example is an existing underground storage tank within a concrete vault. It is a secondary container; however, it does not satisfy the definition: the expansion joints in the concrete may leak upon contact with a hazardous substance.

(OAL 11A, 11B)

4. Commenters pointed out the absurdity of reporting an unauthorized release which should have been detected but was not. [12, 12b, 13, 53, 87, 97, 97e, 102, 109, 112, 119, 138]

Response: This comment is rejected. Section 25295(a) of the Health and Safety Code [formerly 25284.4 (a)] requires reporting within 24 hours of detection or presumed detection. Eliminating this language would preclude regulatory

agencies from taking enforcement action against an underground storage tank owner or operator whose failure to report an unauthorized release was because the required monitoring was not performed.

#### Deleted Sections and Editorial Changes

Subsection (b) of the initial draft of the proposed regulations was deleted because it was not necessary and did not provide any clarification.

Subsections (a), (b), and (c) were rewritten to provide for additional clarification and consistency with other sections of this article.

#### Section 2651. Unauthorized Release Requiring Recording

##### Specific Purpose

The specific purpose of Section 2651 is to identify the information to be recorded, how the reporting of a recordable release is to be accomplished, the local agency's responsibilities in these situations, the criteria they are to use to determine the integrity of the primary and secondary container, and the procedures to follow if a recordable release becomes a reportable release.

##### Factual Basis: Subsection (a)

Subsection (a) implements Section 25294 of the Health and Safety Code [formerly Section 25284.3] which requires certain unauthorized releases to be recorded on the

permittee's monitoring reports. Unauthorized release cleanup within 8 hours is one of the criteria for recording on the operator's monitoring reports. Commenters believed 8 hours is too restrictive. [102, 113] This comment is rejected. The State Board has no authority to change this 8-hour limit. Much of the information to be recorded is specified by Section 25295(b) of the Health and Safety Code [formerly Section 25284.4(b)]. This information includes an identification of the hazardous substance, quantity of release, operator name, and actions taken to abate the problem. The other information required to be recorded is to assist the local agency in determining if the unauthorized release was properly handled and in assessing the threat to ground and surface waters. This information includes hazardous substance concentration, method of cleanup, and method and location of disposal. The additional information required to be submitted is very basic information needed by the local agency to evaluate the potential of the unauthorized release to endanger public health or contaminate surface and/or ground waters.

In addition, estimated cost information is requested on a voluntary basis. This information will be useful to the State Board and the Legislature in determining the statewide costs to cleanup unauthorized releases. The proposed regulations required this information; however, commenters objected to the mandatory reporting of cleanup costs. [13, 97, 102, 110, 113, 119, 138, 138b] Since the information is not considered vital inasmuch as the cleanup costs for recordable unauthorized releases are not expected to be significant or to be a financial burden to the underground storage tank owner, the proposed regulations have been modified to request voluntary submittal of this information.

(OAL 45)

One commenter indicated that Subsection 2651(a)(7) is not clear with regard to whether the submittal of cost information is voluntary or required. [80c]

Response: This comment is rejected. Subsection (a)(7) clearly states that the approximate costs for cleanup to be submitted is voluntary.

This deferred-reporting alternative is available only for releases which do not escape from the secondary container, do not result in environmental contamination, and which can be cleaned up within 8 hours.

1. A commenter noted that parts of Section 2651 were duplicative of the statute.

[139]

Response: The duplicative sections have been deleted.

(OAL 1B)

2. A commenter ~~stated that the regulations are unclear regarding the level of contamination requiring removal of a tank and surrounding soil and cleanup procedures.~~ stated that the regulations are unclear regarding the level of contamination requiring removal of a tank and surrounding soil and cleanup procedures. [162a]

Response: This comment is rejected. This comment is clearly beyond the scope of these regulations and the associated enabling legislation. The ~~level~~ level of contamination ~~will vary on a case-by-case basis and shall be determined by several different regulatory agencies.~~ will vary on a case-by-case basis and shall be determined by several different regulatory agencies. ~~The State Board of Health, Department of Health Services, and EPA are working together to determine what level of contamination requires removal of a tank and surrounding soil and cleanup procedures.~~

~~XX~~  
~~XX~~  
~~XX~~  
The nature and extent of cleanup is based on other statutes and regulations; and repetition would not be appropriate in these proposed regulations.

(OAL 10A)

2. Commenters indicated that the words "cleaned up" in Subsection 2651(a)(3) of the initial draft of the proposed regulations were not defined [12].

Response: The proposed regulations were amended. In the initial draft dated August 23, 1984, if the release between the primary and secondary containers could be cleaned up within 8 hours, the release only had to be recorded. If it could not be cleaned up within 8 hours the release had to be reported. Subsection 2650(b) now says that if the leak detection monitoring system in the space between the primary and secondary containers can be reactivated within 8 hours, then the release has to be recorded, but not reported. In this case, the necessary clean up will depend on the particular monitoring system. The clean up has to be performed to the extent necessary so that the monitoring will not indicate a leak when reactivated.

3. A commenter indicated that the proposed regulations lack clarity because they fail to specify the reporting/recording procedure for double-walled underground storage tanks. [12]



**Response:** This comment is rejected. Sections 25294 and 25295 of the Health and Safety Code [formerly Sections 25284.3 and 25284.4, respectively] clearly identify under which circumstances an unauthorized release should be reported or recorded on the monitoring reports. The proposed regulations further clarify that only owners of new underground storage tanks can record unauthorized releases on their monitoring reports if the other criteria are met.

4. Commenters believed the phrase "shall be contained" in Subsection 2651(b) is redundant. [53, 87, 102]

**Response:** The subsection was deleted because it repeats the statute.

5. A commenter believes "hazardous" should be defined. [102]

**Response:** This comment is rejected. Section 25281(d) of the Health and Safety Code [formerly Section 25280(c)] clearly defines hazardous substance.

6. A commenter suggested changing the wording from "cleanup method" to "method of cleanup" in Subsection 2651(b)(2). [138]

**Response:** The suggested change was made.

7. Commenters objected to submitting a copy of the hazardous waste manifest. [53, 87, 87g, 97, 102]

**Response:** The proposed regulations were modified to require the report to

indicate if a hazardous waste manifest was used. The State Board can get a copy of the manifest from the Department of Health Services, if needed.

8. A commenter suggested that any release from the primary container should be reported so that the local agency can approve mitigation and repair measures.  
[176]

Response: This comment is rejected. Section 25294 of the Health and Safety Code [formerly Section 25284.3] only requires that such a release be recorded on the monitoring reports. However, any repairs to an underground storage tank must be reported within 30 days as required by Section 2712(a) of these proposed regulations. Releases to secondary containers which are contained and cleaned up may not involve any increases of potential for water quality impacts, so deferred reporting with monitoring reports gives the local agency adequate notice of such occurrences. If such incidents become routine, the local agency can review permit conditions and monitoring requirements.

**Factual Basis: Subsections (b), (c), and (d)**

Subsection (b) gives the local agency the authority to review the reported information and determine if the underground storage tank meets the requirements of Article 3. Section 25295(a) of the Health and Safety Code [formerly Section 25284.4(a)] gives the local agency this authority so that underground storage tanks which have experienced releases will be evaluated and, if needed, repaired before being used again.

Subsection (c) lists conditions which could cause deterioration of the secondary container. These conditions need to be identified so the local agency can determine the safety of reusing the underground storage tank.

Subsection (d) requires that, if a release being treated as a recordable release is determined be more serious than first thought and does not meet the definition set forth in Section 25294 of the Health and Safety Code [formerly Section 25284.3], it immediately be treated as a reportable release under Section 25295 of the Health and Safety Code [formerly Section 25284.4]. If the release cannot be contained by the secondary container or results in contamination which cannot be cleared up within 8 hours, the local agency and other responsible agencies need to be notified within 24 hours.

**Deleted Sections and Editorial Changes**

Subsection (a) was deleted because it duplicated Section 25294 of the Health and Safety Code [formerly Section 25284.3].

Editorial changes were made in Subsections 2651(b), (c), and (d).

### Section 2652. Unauthorized Releases Requireing Reporting

#### Specific Purpose

The specific purpose of Section 2652 is to identify how and when to report a "reportable release", specify the local agency's responsibilities and criteria to determine the integrity of the underground storage tank, and specify that these reporting requirements are in addition to other reporting requirements specified by other laws and regulations and that additional information may be required by other governmental agencies.

#### Factual Basis: Subsection (a)

This paragraph interprets Section 25295(a) of the Health and Safety Code [formerly Section 25284.4(a)]. Subsection (a) requires that all unauthorized releases which are not reported pursuant to Subsection 2651 be reported within 24 hours according to the reporting requirements of Subsection 2652. In response to comments that "immediate" reporting was unclear, the proposed regulations have been modified. [53, 87, 102]

#### Comments

A commenter suggested adding to Section 2652(a)(1) "an unauthorized release that cannot be cleaned up within 8 hours". [97]

Response: This comment is rejected. Subsection (a) has been rewritten to include all unauthorized releases not covered in Section 25294 of the Health and Safety Code [formerly Section 25284.3]; this includes unauthorized releases which cannot be cleaned up within 8 hours.

**Factual Basis: Subsection (b)**

Subsection (b) requires the operator or permittee to report the release to the local agency, and State Office of Emergency Services or Regional Board within 24 hours after the release has been detected or should have been detected. The releases defined by this section are of critical nature and have the greatest potential for contamination of ground or surface waters and therefore need to be reported and contained immediately. Section 25295 of the Health and Safety Code [formerly Section 25284.4(a)] provides authority for this requirement. The report to the State Office of Emergency Services implements Section 25299.1 of the Health and Safety Code [formerly Section 25288] which contemplates the involvement of State agencies in the assessment of contamination from unauthorized releases and supervision of cleanup and abatement activities.

**Comments**

1. Commenters pointed out the absurdity of reporting an unauthorized release which should have been detected but was not. [12, 12b, 13, 53, 87, 97, 97e, 102, 109, 112, 119, 138]

Response: This comment is rejected. Section 25295(a) of the Health and Safety

Code [formerly Section 25284.4(a)] requires reporting within 24 hours of detection or presumed detection. Eliminating this language would preclude regulatory agencies from taking enforcement action against an underground storage tank owner or operator whose failure to report an unauthorized release was because the required monitoring was not performed.

2. Commenters questioned the duplication of effort of reporting the unauthorized release to the local agency, the State Office of Emergency Services, and the Regional Board. [80c, 87, 102, 112, 113, 119, 139]

Response: The requirement has been changed to reporting to the local agency and the State Office of Emergency Services or Regional Board. Section 25295(a) of the Health and Safety Code [formerly Section 25284.4(a)] requires reporting to the local agency. Water Code Section 25271 requires reporting to the unauthorized releases to the Regional Board or the State Office of Emergency Services.

Factual Basis: Subsection (c)

Subsection (c) requires the operator or permittee to submit a written report to the local agency within 5 working days of detecting the occurrence. Much of the information to be reported is required by Section 25295(b) of the Health and Safety Code [formerly Section 25284.4(b)]. This information includes the nature of the hazardous substance released, quantity of release, operator name, and actions taken to abate the problem. Other information required to be reported is needed to assist the local agency in determining if the authorized release is being handled properly and

whether ground water and surface waters are protected. This information includes hazardous substance concentration, method of immediate cleanup and proposed cleanup actions, extent of soil and ground and surface water contamination, and method and location of hazardous substance, contaminated soil, and water disposal. Approximate cleanup costs have been requested so that the State Board and the Legislature (which receives this information in a annual report) have some idea of the total statewide costs involved with unauthorized release cleanups.

### Comments

1. Commenters suggested the requirement for reporting cost information should be deleted. [13, 87g, 97, 102, 110, 113, 119, 138, 138b]

Response: This comment is rejected. The proposed regulations were, however, changed from "cost" to "approximate cost". The argument commenters had against including cost data was that significant time and expense would be required to determine actual costs. This level of effort is not required; approximate costs will satisfy the State Board's and the Legislature's needs. The State Board is required to maintain complete and accurate data on all underground storage tanks in California and on unauthorized releases. The cost information is an important part of the overall data base. The small amount of information the State Board has on cleanup costs indicates that these costs can go into the millions of dollars. It is anticipated by the regulatory agencies and by industry that there are many sites in California which will require extensive cleanup actions. Many cleanup projects will be initiated as a result of the monitoring requirements imposed on existing underground storage tanks by the

monitoring requirements imposed on existing underground storage tanks by the Health and Safety Code. The Legislature will need cost information if they wish to establish some type of cleanup financing mechanism, such as revolving loans or grants.

2. Commenters request that the requirement for submittal of a copy of the hazardous waste manifest be deleted. [87g, 97]

Response: The new requirement is to indicate if a hazardous waste manifest was used. From this information, the State Board can get a copy of the manifest from the Department of Health Services, if needed.

3. A commenter requested that the report include proposed method(s) of cleanup. [138]

Response: The addition was made.

Factual Basis: Subsection (d)

Subsection (d) requires the operator or permittee to submit reports every three months or more frequently on cleanup actions and investigations. This reporting is needed to assure the local agency and Regional Board that cleanup actions are continuing and appropriate cleanup methods are being used. Depending on the potential of severe contamination, the reporting frequency should be flexible, but not beyond three months. Three months is a reasonable maximum amount of time to track cleanup actions.



Comments:

1. A commenter suggested that cleanup reports required every three months be reported only to the local agency and not the Regional Board. [80c]

Response: This comment is rejected. Once an unauthorized release breaches secondary containment or primary containment, if there is no secondary containment, the Regional Board becomes actively involved in enforcing the cleanup. The unauthorized release is a threat to water quality and, under the Porter-Cologne Water Quality Control Act, the Regional Board must be involved. Therefore, the cleanup reports should also be submitted to the Regional Boards.

2. A commenter suggested that this subsection is unclear because the term "responsible agency" is not defined. [168b]

Response: This comment is rejected. The term "responsible agency" was used within a single sentence to refer back to the local agency and Regional Board. The State Board may consider whether further editorial clarification is appropriate in a subsequent revision of the proposed regulations to bring this subchapter into compliance with 1984 legislation.

Factual Basis: Subsection (e)

Section 25295(c) of the Health and Safety Code [formerly Section 25284.4(c)] states that the reporting requirements of Section 25295 [formerly Section 25284.4] are in

addition to those imposed by Water Code Section 13271. The proposed regulation is necessary to interpret this provision because there are other reporting requirements applicable to unauthorized releases which are not mentioned in the Health and Safety Code. For example, while Water Code Section 13271 refers to hazardous substances, Water Code Section 13272 refers to oil and other petroleum products. Unless it was the intent of the Legislature to abrogate Water Code Section 13272, which intent should not be presumed absent a clear expression thereof, the Health and Safety Code must be interpreted in such a way that it will be consistent with other applicable reporting requirements. Therefore, the proposed regulations refer to other laws and regulations which might contain applicable reporting requirements, as well as Water Code Section 13271.

Comments:

A commenter thought Subsection 2652(c) duplicates the law. [139]

Response: This comment is rejected. This subsection interprets the law to ensure that underground storage tank owners and operators are not misled by not limiting regulatory agencies' authority under other specific laws and regulations.

Deleted Sections or Editorial Changes

(OAL 52)

Subsections (e) and (g) were deleted in response to comments of duplication and unclear language. [84, 102, 109, 139] Subsection (e) [old (f)] informs the tank owner that the reporting requirements of this section are in addition to any other reporting

requirements that may be required by other laws and regulations. The tank owner must determine what other laws and regulations may be applicable.

Editorial changes were made in Subsections (a), (b), (c), (d), and (e) to eliminate duplication and clarify Sections 25294 and 25295 of the Health and Safety Code [formerly Sections 25284.3 and 25284.4, respectively].

## 6. Article 6, Allowable Repairs

## **Article 6. Allowable Repairs**

### **Introduction**

The repair of leaking underground storage tanks that contain motor vehicle fuel not under pressure is provided for in Section 26295 of the Health and Safety Code [formerly Section 25284.5]. A leaking underground storage tank of the above type must either be repaired, replaced, or closed. Replacement and closure are covered in Articles 3 and 7, respectively. Article 6 specifies repair requirements. If repairs are not adequately performed, an underground storage tank without adequate containment could be put back in service which would lead to another unauthorized release of hazardous substances.

### **Section 2660. Applicability**

#### **Specific Purpose**

The specific purpose of the proposed regulations is to establish requirements for the repair of leaking underground storage tanks that contain motor vehicle fuel not under pressure. The proposed regulations describe the conditions which must be met to allow a primary container to be repaired, the allowable repair methodology, and the required underground storage tank testing which must be implemented prior to placing the repaired underground storage tank back in service.

#### **Factual Basis**

Repair of an underground storage tank can raise questions concerning the underground storage tank's future containment ability. There are three critical areas that must be addressed in order to answer the above concern. These are (1) pre-repair underground storage tank evaluation to assure that the underground storage tank has a good chance of being repaired successfully, (2) evaluation of the underground storage tank repair methodology and materials to assure compatibility with both the stored substance and the original underground tank and some demonstration that the methodology is proven, and (3) a post-repair test to assure that the repair was successful.

#### Comments

1. A commenter requested that Article 6 be amended to apply only to motor fuel vehicle tanks in order to be consistent with Section 25296 of the Health and Safety Code [formerly Section 25284.5]. [14b]

Response: Subsection 2660(a) has been amended accordingly.

2. A commenter indicated that Section 25296 (underground storage tank repair) of the Health and Safety Code [formerly Section 25284.5] has been amended by the 1984 legislation and that Article 6 should be amended to require monitoring after underground storage tank repair. [78c]

Response: This comment is rejected. As was discussed in the preamble, the proposed regulations are based solely on the authority provided in the 1983 legislation. Specific provisions of the 1984 legislation are included when they

are within the regulatory authority given to the State Board in the 1983 legislation and when they can be factually supported. Accordingly, most of the changes made by Section 6 of AB 3781 (1984) dealing with the repair evaluation have been incorporated into Section 2661 of the proposed regulations; however, a significant change made by Section 6 requiring the installation of monitoring wells when an underground storage tank is repaired was not implemented in Section 2663 of the proposed regulations.

3. A commenter proposed that the underground storage tank owner shall demonstrate to the local agency that no significant soil or ground water contamination has occurred. [120]

Response: This comment is rejected. The commenter's recommendation is already a part of the proposed regulations. If a repair is due to an unauthorized release, the above demonstration is required pursuant to Article 5 of the proposed regulations.

#### Section 2661. Repair Evaluation

##### Specific Purpose

The specific purpose of the proposed regulations is to establish criteria which will be used to determine if an underground storage tank can be successfully repaired. This section applies to all underground primary containers storing motor vehicle fuel not under pressure which have experienced an unauthorized release and which have not been repaired previously by an interior coating process. This section is intended to

identify those underground storage tanks that cannot be successfully repaired so that an inadequate repair is not performed leading to a false sense of security about the containment ability of the underground storage tank.

Factual Basis: Subsections (a) - (c)

One of the major concerns regarding underground storage tank repair is that all significant problems with the underground storage tank are adequately addressed. It would be very easy for an underground storage tank owner to identify a puncture or small corrosion hole to be repaired while ignoring a more serious problem, such as more widespread corrosion that had not yet manifested itself. In order to address this concern, this section requires that the underground storage tank owner evaluate the underground storage tank to be repaired to determine if the failure mechanism which caused the defect to be repaired is affecting other parts of the underground storage tank or if any other failure mechanisms may be affecting the underground storage tank.

There are certain conditions that, if present, make it very questionable as to whether an interior lining repair will work. For this reason, the proposed regulations require that the thickness of the underground storage tank shall be determined utilizing either an ultrasonic test, visual inspection of the underground storage tank interior by a special inspector, or a comparable test approved by the State Board. If a serious corrosion problem is indicated by any of the above tests, the local agency can either require additional corrosion protection or prohibit the repair of the underground storage tank. In some instances, however, the proposed regulations prohibit any consideration of repair. For example, this section prohibits the use of an interior



lining for a steel underground storage tank that has been visually inspected when the repair is intended to correct (1) a liner split of more than three inches, (2) a single hole with a diameter greater than one and one-half inch, (3) more than five small perforations in a one square-foot area, (4) more than 20 perforations in a 500 square-foot area; or (5) any failure or opening within six inches of any seam or weld.

#### Comments

1. A commenter indicated that most corrosion failures occur externally at seams and welded joints and that an underground storage tank should not be repaired when there is a failure or opening within 6 inches of any seam or weld. [22] A commenter indicated that it is an accepted fact that splits near the end caps lead to subsequent failures after an underground storage tank has been repaired due to the flexing of the underground storage tank during fuel drops. [133]

Response: Subsection 2661(c)(2)(B)(v) has been added accordingly.

2. A commenter believed that underground storage tanks with external corrosion should not be repaired. [22]

Response: This comment is rejected. The proposed regulations preclude repairs if the underground storage tank is subject to a serious or widespread corrosion problem [Subsections 2661(b) and (d)]; however, anything less than the above needs to be evaluated on a case-by-case basis in accordance with the evaluation criteria in Section 2661.

3. Commenters recommended that an underground storage tank repair not be allowed if a single hole with a diameter of greater than one-half of an inch exists. [4a, 4b]

Response: This comment is rejected. The proposed regulations have been modified to change the diameter of a single hole which would preclude a repair from greater than one inch to greater than one and one-half inches based on two accepted standards, the Uniform Fire Code Standard No. 79-6 and the American Petroleum Institute Publication 1631. Commenters did not provide any justification for the one-half inch value.

4. Commenters proposed that Subsections 2661(c)(1) through (3) should be deleted and replaced with a reference to the American Petroleum Institute Publication 1641 (the reference should be 1631) criteria. [53, 87, 102]

Response: This comment is rejected. Subsections 2661(c)(1) through (3) essentially embody the conditions under which an underground storage tank cannot be repaired in the subject reference. However, the criteria in Subsection 2661(c) includes criteria not contained in American Petroleum Institute Publication 1631, which is important in determining whether or not an underground storage tank should be repaired (i.e., a failure or opening within 6 inches of a seam or weld). (See comment number 1.)

5. A commenter stated that Subsections 2661(c)(2)(B)(i) and (v) contradict each other. [22D]

**Response:** This comment is rejected. Paragraph (i) addresses splits longer than 3 inches, while paragraph (v) addresses any failure or opening within 6 inches of any seam or weld. These paragraphs do overlap when a split occurs within 6 inches of a seam or weld; however, they are not contradictory.

- 6. A commenter recommended changing the wording in wording for Subsection 2661(c)(2)(B). The commenter suggested specific wording. [22d]**

**Response:** This comment is rejected. This wording is not necessary because Subsection 2661(c) says essentially the same thing (although not in one sentence) regarding the fact that it is the special inspector making the determination involving Subsections 2661(c)(2)(B)(i) to (v).

- 7. Commenters have questioned the requirement that, if the deflection of a fibreglass underground storage tank is greater than 1 percent, the underground storage tank shall not be returned to service. They state that 2 percent is the industry standard. [26f, 87g, 207]**

**Response:** This comment is rejected. The deflection requirement in Subsection 2661(c)(2)(A) was added to the proposed regulations for fibreglass underground storage tanks to both ensure that fibreglass underground storage tanks with significant structural damage are not returned to service and to bring the proposed regulations into compliance with Section 25296 of the Health and Safety Code [formerly Section 25284.5]. Section 25296(a)(1)(B)(i) specifies that if the cross-section diameter has compressed by more than 1 percent the fibreglass underground storage tank shall not be returned to service. Thus, the use of 1

percent in the proposed regulations is in conformance with the current law, and the inclusion of this proposed regulation is within the authority granted the State Board in the 1983 statute.

8. A commenter recommended deletion of the condition in Subsection 2661(c)(2)(B)(v) that an underground tank cannot be repaired if there is a failure or opening within six inches of a seam or weld. The commenter contended that the weld may still be strong in this situation. They also indicated that American Petroleum Institute Publication 1631 does not include this condition. [38f]

Response: This comment is rejected. This condition was added in response to the points raised by commenters in comment number 1, above. The fact that American Petroleum Institute Publication 1631 does not include this condition is not sufficient reason to not include this specification in the proposed regulations. Furthermore, its inclusion was based on actual field experience as indicated by the commenters.

**Factual Basis: Subsections (d)**

Subsection (c) required that, for steel underground storage tank repairs, the evaluation must include an ultrasonic test, certification by a special inspector, or a comparable test approved by the State Board to determine if a corrosion problem is affecting the integrity of the underground storage tank to be repaired. If such a problem is identified, it is incumbent on the underground storage tank owner to demonstrate that future corrosion problems can be minimized and that the identified problem will not

adversely impact the structural integrity or containment ability of the underground storage tank. The failure to provide such assurances is a clear indication that even if the underground storage tank is repaired, it is likely that a problem will reoccur in a short time and that the repair should not be allowed.

Comments:

1. A commenter believes that the term "serious corrosion problem" is not specific and is subject to interpretation by the various parties involved. [38]

Response: This comment is rejected. Staff believes that Subsection 2661(d) coupled with Subsections 2661(a) to (c) provide a sufficient mechanism to identify a serious corrosion problem. Furthermore, there are certain issues, such as corrosion problems and potential remedial actions, that are subject to site-specific evaluations and decisions.

2. A commenter requested that Subsection 2661(d) should make reference to the criteria described in American Petroleum Institute Publication 1641. In addition, the commenter recommended that a repair should be permitted even if a serious corrosion problem exists or if it can be demonstrated that new or additional corrosion protection will significantly minimize the corrosion and that the existing corrosion problem does not threaten the structural integrity or containment ability of the underground storage tank. [102]

Response: This comment is rejected. This is contrary to Subsection 25296 of the Health and Safety Code [formerly Section 25284.5] which allows a local agency to deny authorization for the repair in these situations.

3. A commenter proposed that double-walled underground storage tanks that may be damaged by means other than corrosion should be allowed to be repaired as recommended by the underground storage tank manufacturer. [21]

Response: This comment is rejected. Section 2661 presently does not limit repairs to corrosion failures. An underground storage tank may be repaired according to the recommendation of the underground storage tank manufacturer as long as it is in accordance with the proposed regulations.

4. A commenter recommended that Subsection 2661(d) be rewritten to provide more clarity. The commenter suggested specific wording. [22d]

Response: This comment is rejected. The wording is similar to the proposed regulations and does not provide any additional clarity.

Factual Basis: Subsection (e)

Interior coating is a process that, if done properly, has a reasonably high success rate if it is the first application. A second interior coating has a high risk of failure. Therefore, the proposed regulations require the underground storage tank owner to demonstrate that a previous interior coating has not been applied to the underground storage tank.

References

New York State, Department of Environmental Conservation, January 1983,  
"Technology for the Storage of Hazardous Liquids, A State-of-the-Art Review"

American Petroleum Institute Publication 1631, 1983, "Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks"

Uniform Fire Code, Standard No. 79-6

Section 2662. Repair Methodology

Specific Purpose

The specific purpose of this section is to establish criteria which will govern the method by which underground storage tank repairs will be accomplished. The two principal factors that could contribute to the failure of an interior coating repair are

the method of application and the compatibility of the coating to the original underground storage tank material and the substance to be stored. This section is intended to ensure that these objectives are met.

#### Factual Basis

The factual basis for the determination by the State Board that the proposed regulations are necessary is as follows.

Section 25296 of the Health and Safety Code [formerly Section 25284.5] specifically provides for the following:

1. The material used to repair the underground storage tank by an interior- coating process is compatible with the substance being stored.
2. The material used to repair the underground storage tank by interior coating is applied in accordance with nationally recognized engineering practices, such as the American Petroleum Institute Publication 1631 for the interior lining of existing underground storage tanks.

In order for the coating to act as a container, it must be compatible with any hazardous substance proposed for storage and be compatible with the original underground storage tank material. The requirement for a primary container, which the coating is intended to satisfy, is that it not be subject to deterioration when in contact with the hazardous substances being stored. The use of a material that is incompatible with the stored hazardous substance will deteriorate in time and is



inconsistent with the statute. In some cases, this period can be relatively short. This situation will result in a reoccurrence of a leak thereby threatening public health and water quality and costing the underground storage tank owner further remedial action expenses. In addition, the owner's time and costs of installing the underground storage tank's coating are wasted. Allowing the use of coatings that are incompatible would lead to a false sense of security as to the reliability of the containment ability of the underground storage tank by both the local agency and the underground storage tank owner.

This section requires the use of accepted application practices to assure that new methods are adequately tested prior to their use. Furthermore, the accepted practices include specifications for preparation of the interior underground storage tank surface which is necessary for a proper bonding of the coating to the underground storage tank.

In addition, one method of assuring that the application method will work and that the material used is compatible is to require that the method and material be listed or certified by an independent (third party) organization such as a nationally recognized, independent testing organization. One such organization, Underwriters Laboratories, has issued a procedure for evaluating underground storage tank lining methods and materials.

#### Comments

1. Commenters have recommended that repair materials be certified. [22, 133]

Response: Subsection 2662(d) has been added in response to this comment.

(QAL 2)

2. Commenters indicated that the American Petroleum Institute's recommended practice No. 1631 ~~referred to~~ referred to in Subsection 2662(b) is not an accepted standard and should be deleted. [22, 22d, 133] and another commenter indicated the subsection should be deleted. [38d, 163d]

Response: Subsection 2662(b) has been amended ~~to delete the reference to the recommended practice No. 1631~~ to delete the reference to the recommended practice No. 1631 ~~because the rulemaking file does not contain documentation to support use of the recommended practice referred to.~~ to delete the reference to the recommended practice No. 1631 because the rulemaking file does not contain documentation to support use of the recommended practice referred to. However, the subsection was not deleted since the State Board has the authority under Chapter 6.7 of the Health and Safety Code to develop regulations for tank repair as set forth in Section 25296.

3. A commenter questioned the rationale for initially requiring the use of listed underground storage tanks but not requiring a repaired underground storage tank to meet the same criteria. [133]

Response: This comment is rejected. The statute allows for the repair of

underground storage tanks, and the proposed regulations contain specific criteria to determine if a tank can be successfully repaired. Additionally, the proposed regulations require the use of listed or certified repair methods and materials once a listing or certification process is available. In the case of Underwriters Laboratories' listing process, a representative underground storage tank is repaired and then the repair is tested and evaluated by Underwriters Laboratories.

4. Commenters stated that it is not necessary to require certification of a repair process by an independent testing organization in light of the extra cost involved, the past performance of the underground storage tank lining industry and the fact that it is not mandated by the statute. [38d, 38f]

Response: This comment is rejected. The past history of the underground storage tank lining industry may be excellent, but this is no guarantee as to the future performance of the industry (the commenter did not provide statistics on the underground storage tank lining industry). Certification or listing of materials and lining process as required in Subsection 2662(d) will help ensure that underground tanks are properly repaired. With regard to the law not requiring Subsectionn 2661(d), Section 26299.3 of the Health and Safety Code [formerly Section 25288.2] authorizes the State Board to develop proposed regulations for the repair of underground storage tanks. The proposed regulations are, therefore, an interpretation by the State Board of what is necessary to implement the law.

5. A commenter contended that the reference to American Petroleum Institute

Publication 1631 in Subsection 2662(b) should not have been deleted because American Petroleum Institute Publication 1631 is a recognized standard in the petroleum industry for lining underground storage tanks. [38f]

Response: This comment is rejected. Aside from the point that American Petroleum Institute Publication 1631 is an unenforceable guideline and that it is not prepared by an independent organization, is the fact that the proposed regulations may not make reference to other regulations or guidelines without justification. However, standards from American Petroleum Industry Publication 1631 have been included in Section 2661 when they were justified.

#### References

American Petroleum Institute Publication 1631, 1983, "Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks"

Underwriters Laboratories, Incorporated, Subjects 58, 1316,  
April 23, 1984, "Lining of Underground Storage Tanks"

#### Section 2663. Primary Container Monitoring

##### Specific Purpose

The specific purpose of this section is to assure that the underground storage tank or pipe was repaired correctly, and that it will be capable of functioning as a primary container without leaking. Testing will provide some assurance that the repairs

performed were successful and that no other leaks were overlooked or caused by the repair.

### **Factual Basis**

The factual basis for the determination by the State Board that the proposed regulations are necessary is as follows:

Section 25296 of the Health and Safety Code [formerly Section 25284.5] provides for testing to be performed after a repair is completed. One test specified is a vacuum test, if technology is available for testing the underground storage tank on site. Another test is that specified in Section 2-7.3 of the Flammable and Combustible Liquids Code, National Fire Protection Association, November 20, 1981 (NFPA 30-1981).

Another test, which evaluates the containment ability of an underground storage tank, is the precision test. This test is defined in Section 4-3.10 of Underground Leakage of Flammable and Combustible Liquids, National Fire Protection Association, June 1983 (NFPA 329). The specifications for this test are listed in Section 2643 of Article 4 of the proposed regulations.

The two tests that we believe are appropriate are the vacuum test and the precision test. The vacuum test would be used to determine the structural stability of the underground storage tank. The precision test provides an accurate determination of whether or not the repaired underground storage tank will provide containment.

Standards already exist for the testing of pipelines after installation. Since a repaired underground storage tank or pipeline should act as a new unit, it should be capable of successfully passing a test to determine its containment ability.

### Comments

1. Commenters requested that the reference to the National Fire Protection Association utilize the latest edition, rather than a specific edition. [53, 87, 102]

Response: This comment is rejected. Subsections 2663(a) and (b) have been amended to delete all references. The precision test is now referenced to Section 2643, where it is described in detail.

### (OAL 2)

2. Comments were received both for and against the use of a vacuum test before placing a lined underground storage tank back in service. Those opposed to the vacuum test contended that (1) the test is designed to detect leaks and not to test the underground storage tank, (2) the test will not effectively test the bond of an interior liner and it could collapse the underground storage tank, (3) the test is not required in the 1984 statutes, (4) Underwriters Laboratory should change their requirements for new underground storage tanks if they are going to require a vacuum test after underground storage tank repair, and (5) new steel underground storage tanks are not designed or tested for any vacuum condition. [28, 38c, 38d, 38f, 87g, 163d, 188b] Those in favor of the vacuum test contended that (1) the vacuum test is recognized by Underwriters Laboratory and is currently being performed in the field by underground storage tank lining firms, (2) vacuum testing should be included in evaluating underground storage tank repairs because it is required by both Underwriters Laboratory Subject 58, 1316 (listing procedure for underground storage tank linings) and San Jose City's underground storage tank repair guidelines, (3) a structural loading test should be incorporated to establish structural confidence in the finished

product, and (4) Underwriters Laboratory employs the vacuum test in testing new underground storage tank designs to verify the ability of the underground storage tank to withstand expected external hydrostatic forces. [41, 4b, 22,22d, 133]

Response: A requirement for a vacuum test has been added to Subsection 2663(a). The comments that were opposed to inclusion of the vacuum test are rejected. A vacuum test was required by Section 25284.5(c) of the Health and Safety Code (enacted in 1983). Section 25296 of the Health and Safety Code (enacted in 1984) amended Section 225284.5(c) and deleted the requirement for the vacuum test; however, the State Board has the authority under Chapter 6.7 of the Health and Safety Code to retain the vacuum test if it believes it is necessary for implementing Section 25296 of the Health and Safety Code. The purpose of the vacuum test and other tests in Underwriters Laboratory Subject 58, 1316 is to insure that there is no damage to the underground storage tank as evidenced by cracking, buckling, deformation, or damage of the lining material by cracking. The purpose is not specifically to see if the lining material will be pulled off the walls of the underground storage tank. The vacuum test, in this case, is not for leak detection, but to test the structural integrity of the underground storage tank and as comment 22d indicated, their test is used when listing or certifying new underground storage tank design.

3. A commenter indicated that the 1984 statute deletes the reference to the National Fire Protection Association 30 test since the test would require underground storage tank excavation. [78]



Response: The proposed regulations have been modified to delete reference to the subject test.

4. A commenter indicated that the proposed regulations do not clearly state the requirements for testing repaired underground storage tanks prior to being returned to service and that the procedures presented by Underwriters Laboratories Subject 58, 1316 should be used. [208]

Response: This comment is rejected. Subsection 2663(a) prescribes testing requirements that must be adhered to before returning an underground storage tank to service and the listing or certification of the lining process required by Subsection 2662(d) should include testing a repaired underground storage tank.

5. A commenter contended that the use of 5.3 inches of mercury (Hg) for the vacuum test was taken out of context with regard to Underwriters Laboratories' test procedures for new underground storage tank designs or repair of underground storage tanks. [22b, 22d]

Response: This comment is rejected. The Underwriters Laboratories' requirement for new underground storage tanks was not applied to Subsection 2663(a). Underwriters Laboratories Subject 58, 1316, which applies to certification of underground storage tank linings and underground storage tank lining repair procedures and which specifies the use of a 5.3 inch Hg vacuum test was the Underwriters Laboratories' section that was considered. The commenters' point is that when a new underground storage tank is vacuum tested, a certain vacuum is applied to simulate the hydrostatic force that may be

exerted by water around the exterior of the underground storage tank. A safety factor of 5.3 inches of mercury (Hg) is applied. For certification of an underground storage tank repair process, Underwriters Laboratories Subject 58, 1316 requires that the underground storage tank be lined, pulled from the ground, inspected, and then buried and tested. The ground around the underground storage tank is then flooded to create the hydrostatic force on the exterior of the underground storage tank. A vacuum of 5.3 inches of Hg is then applied as a safety factor. As stated above, this Underwriters Laboratories' procedure is only for certification of an underground storage tank repair procedures and was not intended to be applied in the field to test every underground storage tank repaired. Furthermore, the underground storage tank repaired in the field may already be subject to external hydrostatic forces, and it would not be prudent to apply a vacuum test simulating this hydrostatic force and the 5.3-inch Hg safety factor.

6. A commenter recommended deleting the last sentence of Subsection 2663(a) because the commenter says the technology for vacuum testing underground storage tanks is presently available. [22d]

Response: This comment is rejected. If the subject technology is available, the vacuum test must be performed.

7. A commenter pointed out that Appendix I did not include a reference for Subsection 2663(b). [87g]

Response: The subject reference was inadvertantly left out of Appendix I and

is included in the proposed regulations.

### **References**

National Fire Protection Association, Incorporated, Publication 329, June 1983,  
"Underground Leakage of Flammable and Combustible Liquids 1983"

Underwriters Laboratories, Incorporated, Subject 58, 1316 April 23, 1984, "Lining of  
Underground Storage Tanks"

National Fire Prevention Association, Incorporated, Publication 30, "Flammable and  
Combustible Liquids Code 1981"

American National Standards Institute, Publication B31, "American National Standard  
Code of Pressure Piping"

## 7. Article 7, Closure Requirements

## Article 7. Closure Requirements

### Introduction

Once the useful life of an underground storage tank ends, it can still pose a threat to public health and the environment if it is not properly closed. Section 25298 of the Health and Safety Code [formerly Section 25286] provides that no person shall abandon, close, or temporarily cease operating an underground storage tank unless they comply with certain requirements. Proper closure involves removal of all hazardous substances from the underground storage tank, assuring that no hazardous substances were discharged from the underground storage tank during its useful life, and assuring that the underground storage tank could not be misused in the future. The proposed regulations in this article provide the details implementing the above necessary actions.

### Section 2670. Applicability

### Specific Purpose

The specific purpose of the proposed regulations is to clearly define temporary and permanent closure and to identify the sections of this article that are applicable to the various forms of closure and the timing that underground storage tank owners must comply with when closing an underground storage tank.

### Factual Basis: Subsections (a) - (c)

Underground storage tanks which are no longer being used can still cause public health or environmental problems due to residual hazardous substances that may be allowed to remain in the underground storage tank, unauthorized future use of the underground storage tank once the permit conditions and monitoring have been eliminated, and the continued migration of hazardous substances which may have been released from the underground storage tank during its life but not detected. Closure requirements are, therefore, necessary to protect the public and the environment from these threats. However, underground storage tank owners should have the ability to temporarily take an underground storage tank out of service without the major expense of reconstructing the underground storage tank at some future date. A two-year period, as specified in Subsection (b), was selected as this seemed to be a reasonable period to allow an underground storage tank owner to reconsider their future equipment/facility needs and to take into account fluctuations in the economy which could cause an owner to discontinue use of an underground storage tank. Exempted from this definition are tanks which are emptied as a result of complete withdrawal of the stored substance during normal operations prior to refilling.

Subsection (c) defines permanent closure as the cessation of storage with no intended or planned reuse of the underground storage tank within a two-year period.

### Comments

1. Commenters said that Subsection 2670(b) does not prescribe the minimum period for temporary closure. Many underground storage tanks are used on a seasonal basis only, of which, some may employ electronic monitoring with a remote alarm. [12, 34]

Response: This comment is rejected. There is no minimum period for temporary closure. In the case where an underground storage tank is used on a seasonal basis only, during the off season the owner or operator has the option of continuing to comply with the subject permit conditions or temporarily closing the underground storage tank in accordance with Section 2671.

(OAL 118)

2. Commenters pointed out that the two-year time frame for temporary closure is in conflict with local ordinances and codes which specify that an underground storage tank can have temporary-closure status for only up to one year. [14B, 111, 116, 133]

Response: This comment is rejected. After considering all the evidence the Board decided that two years was the best balance of Water Quality and the needs of the owners. Section 29299.2 of the Health and Safety Code [formerly Section 252881.] states that the provisions of this chapter preempt any local regulations of underground storage tanks which conflict with these provisions. Therefore, in the case where a local ordinance or code provides for one year temporary closure, the local agency will be able to allow a temporary closure period of up to two years based on Section 25299.2.

Factual Basis: Subsections (d) - (h)

Subsection (d) is intended to preclude the application of the proposed regulations to those underground storage tanks where storage of hazardous substances is on-going pursuant to permits issued utilizing the proposed regulations in Article 3 or 4, but where there is no use (i.e., additions or withdrawals) of the stored substances. Section

25298(b) of the Health and Safety Code [formerly Section 25286(b)] which allows the permittee to continue to comply with permit terms in lieu of implementing temporary closure. Subsection (e) is intended to assure that during closure activities the underground storage tank owner continues to comply with the proposed regulations of Article 3 or 4 until completion of closure. This is because hazardous substances will probably remain in the underground storage tank during this period, and these substances have the same potential of leaking as during the period when the underground storage tank was in service.

Subsection (f) is intended to require that, for planned closure, the underground storage tank owner must submit to the local agency a closure plan prior to closure. This will allow time for review by the local agency.

Subsections (g) and (h) are needed to assure that underground storage tanks which have failed and caused an unauthorized release are not put back in service at some future date without being repaired. Since temporary closure implies that the underground storage tank could be put back in service at any time within two years, it should be reserved only for underground storage tanks that do provide containment. Therefore, underground storage tanks that have failed must be repaired before they can apply for this status. Underground storage tanks that have failed and are not properly repaired must be properly closed in order to preclude the potential environmental threats of an abandoned underground storage tank.

#### Comments

1. A commenter stated that the monitoring requirements referred to in Subsection



2670(d) [comment is directed at Subsection (e)], specifically daily inventory control, have no merit if the underground storage tank has had no leaks in the past and is presently empty. [12]

Response: This comment is rejected. Section 25298(b) of the Health and Safety Code [formerly 25286(b)] states that existing monitoring requirements must be adhered to unless certain closure requirements are followed.

2. Commenters indicated that the term "waste storage" is in error in Subsection 2670(e). [53, 87, 102, 114, 119]

Response: The appropriate change has been made.

3. A commenter indicated that it appears that Subsection 2670(e) requires that empty underground storage tanks be monitored up to two years. [12]

Response: This comment is rejected. Subsection 2670(e) only applies up until all the requirements have been met for temporary or permanent closure.

4. Commenters stated that, based on industry-wide practices, providing a closure plan at least 45 days prior to cessation as required in Subsection 2670(f) is impractical and may not be possible. [12, 34, 53, 87, 97, 102, 110, 113, 138]

Response: This comment is rejected. The 45-day requirement has been replaced with "prior to closure".

## Section 2671. Temporary Closure

### Specific Purpose

The specific purpose of the proposed regulations is to require that certain actions be taken by an underground storage tank owner during a period when the underground storage tank is not being used to store hazardous substances to preclude possible environmental problems. Underground storage tanks which are temporarily taken out of service still have the potential to cause environmental problems due to unauthorized use, leakage of residual substances, explosion, and continued migration of previously leaked substances. The proposed regulations are to provide assurances that these conditions do not exist during the temporary closure period.

### Factual Basis: Subsections (a) - (b)

Subsection (a) restates the definition of temporary closure as was previously defined in Section 2670(b) in order to be very clear on the applicability of this section.

Subsection (b) is necessary to require the removal and proper disposition of all residual hazardous substances. This action will greatly reduce the likelihood of any unauthorized release occurring during the temporary closure period when less attention is given to an out-of-service underground storage tank. All hazardous substances must be removed and handled pursuant to the provisions of Chapter 6.5, Division 20 of the Health and Safety Code.

The possibility of explosion is significant when all liquids are removed from an

underground storage tank and flammable vapors remain. Purging is necessary to eliminate this problem. The illegal use of an accessible empty underground storage tank can create problems during the temporary closure period since many permit and monitoring conditions may be suspended during this time. It is necessary to eliminate access by locking or sealing all access points except venting and to preclude the use of remote pumps which might be used to fill the underground storage tank. It is allowable, but not required, to fill the underground storage tank with a nonhazardous substance that is noncorrosive once the underground storage tank has been cleaned and purged; however, the liquid should be tested and the results given to the local agency before its removal to ensure that the liquid is handled properly.

#### Comments

1. A commenter questioned whether the removal of "all" residual materials in Subsection 2671(b)(1) means below detectable levels, in which case, removal below safety levels should be substituted. [139]

Response: This comment is rejected. Subsection 2671(b)(1) requires the removal all liquid, solids, and sludges; this does not infer that the underground storage tank must be cleaned below detectable levels for the hazardous substance. The intent here is to eliminate the possibility of leakage when the underground storage tank is out of service.

2. A commenter questioned whether completely purging any flammable vapors in Subsection 2671(b)(2) means purging below detectable levels, in which case, purging below safety levels should be substituted. [139]

**Response:** Subsection 2671(b)(2) has been amended. The level of purging shall be to a level which would preclude explosion or to a lower level as may be required by the local agency.

3. Commenters recommended that, for safety purposes, venting should not be sealed in Subsection 2671(b)(4). [53, 87, 102, 138]

**Response:** Subsection 2671(b)(4) has been amended accordingly.

4. A commenter recommended that underground storage tanks should not be filled with a noncorrosive liquid because those liquids may become contaminated and later be disposed of on adjacent land or in a storm sewer. [133]

**Response:** This comment is rejected. The proposed regulations have been modified to require testing of the noncorrosive liquid, with the results to be submitted to the local agency prior to disposal of the liquid. These additional measures should help insure that the liquid is not disposed of improperly. In addition, in some areas it may not be possible to leave an underground storage tank empty if buoyancy is a problem. If the ground water level is above the bottom of the underground storage tank, it may cause the underground storage tank to literally pop out of the ground.

**Factual Basis:** Subsections (c) - (d)

Subsection (c) allows the local agency to modify or eliminate the monitoring required during the period of temporary closure. However, underground storage tanks monitored that do not have secondary containment may not provide for the immediate detection of a release. Therefore, it may be some time before monitoring detects a leak that occurred prior to when the temporary closure period began. If all monitoring is discontinued upon closure, a leak that occurred just prior to temporary closure might not be detected until the underground storage tank is placed back in service. Therefore, the local agency will need to consider this fact when reviewing a permit for temporary closure.

Subsection (d) is needed to assure that the temporary closure actions to eliminate access to the underground storage tank are still in place and have not been tampered with. Determining if there has been a change in the quantity or type of liquid in the underground storage tank during the temporary closure period is an early indication of a potential underground storage tank containment problem as it could be due to a leak or the infiltration of ground water.

#### Comment

Commenters said that to require the same level of monitoring in Article 4 when the underground storage tank is temporarily closed is unnecessary. [12, 110, 139]

Response: Subsection (c) has been rewritten to allow the local agency to determine when monitoring may be modified or eliminated during temporary closure based on the individual circumstances. The local agency must, however, consider the possibility that a leak may have occurred just prior to temporary closure which may not have

been detected immediately due to the type of monitoring and/or the lack of secondary containment.

## Section 2672. Permanent Closure

### Specific Purpose

The specific purpose of the proposed regulations is to clearly define the procedures and requirements which must be followed for permanent underground storage tank closure, including underground storage tank removal and closure in-place. The proposed regulations also specify the monitoring that must be done as a part of permanent closure.

### Factual Basis: Subsections (a) - (c)

Subsection (a) provides for the permanent closure of underground storage tanks either in-place or by removal. Different portions of the same underground storage tank may be permanently closed using different methods, as long as the appropriate subsections are adhered to. For instance, the underground storage tank may be closed by removal, while the piping is closed in-place. Irrespective of the closure method, the demonstration of no discharge applies to all permanent closures.

Proper closure of underground storage tanks is necessary to preclude possible future impacts on the environment. Closure can be accomplished in more than one way, and the proposed regulations give the underground storage tank owner the option. One method involves the removal of the underground storage tank from the ground and its ultimate disposition. Parts (1) and (2) of Subsection 2672(b) are the same as parts (1) and (2) of Subsection 2671(b). Part (1) requires the removal and disposal of all liquid, solids, and sludges. This action will eliminate any unauthorized release during

removal and disposition of the underground storage tank. All hazardous substances must be removed and handled pursuant to the provisions of Chapter 6.5 of Division 20 of the Health and Safety Code. Since the empty underground storage tank may be considered a hazardous material, disposal or reuse must also comply with applicable provisions of Chapter 6.5 of Division 20 of the Health and Safety Code. In the case of disposal, the owner must document to the local agency that proper disposal has been completed. If the underground storage tank will be reused, it is the underground storage tank owner's responsibility to notify the local agency of the future owner, operator, location of use, and nature of use. If the underground storage tank or portions thereof are being sold for scrap, the owner shall identify this reuse to the local agency. In each of the above instances, the information provided to the local agency is necessary to complete their records for each underground storage tank.

The first part of Subsection 2671(c) is the same as Subsections 2661(b) through part (1). The proposed regulations require that the underground storage tank be filled with an inert material to preclude the future use of the underground storage tank unless the underground storage tank will be used for storing a compatible nonhazardous substance. Piping, since it is more difficult to fill, must be removed and disposed of unless there are interfering structures or other pipes being used in a common trench that might be damaged by the removal of the subject pipe. In these instances, the pipe may be closed in-place. Future site owners should be aware of the underground storage tank location and its prior use; the only way to assure this is to require a notice in the deed to the property. If future problems do arise, it will be easier to locate the underground storage tank and have information on its prior use.



## Comments

1. Commenters indicated that the language in Subsections 2672(b)(1), (3), (4), and (5) and (c)(1) and (2) regarding the handling and disposal of hazardous materials goes beyond the proposed regulations' statutory authority. [53, 87, 102, 138]

Response: Subsections 2672(b) and (c) have been amended to reference Chapter 6.5 of Division 20 of the Health and Safety Code.

2. A commenter indicated that the meaning of "all" in Subsections 2672(b)(1) and (c)(1) is not clear. [139]

Response: This comment is rejected. Subsections 2672(b)(1) and (c)(1) require the removal of "all" liquid, solids, and sludges. This means that these substances must be removed from the underground storage tank in order to preclude any possible leakage.

3. A commenter indicated that the use of "purge" is not clear in Subsection 2672(b)(2). [12]

Response: This comment is rejected. Purging, as required in Subsection 2672(b)(2), may be accomplished using guidelines published by organizations such as the American Petroleum Institute or local fire departments or contained in publications such as the Uniform Fire Code. Purging is a commonly used term among professionals involved with the storage of hazardous substances.

4. Commenters have requested that Subsection 2672(b)(4) be removed from the proposed regulations because the owner should not be expected to know how an underground storage tank will be put to use by future owners and this subsection is outside of jurisdictional boundaries and is beyond local agency enforcement powers. [110, 117c 139c]

Response: This comment is rejected. The proposed regulations require the underground storage tank owner to notify the local agency of proposed reuse. This information will be transmitted to the State Board pursuant to Section 25286 of the Health and Safety Code [formerly Section 25283.2] to ensure that the State Board's inventory of underground storage tanks remains up to date. Such a notification requirement does not involve local agency enforcement jurisdiction. The commenter states that the new owner will provide the subject information to the local agency; however, if the underground storage tank is moved to the jurisdiction of another local agency, the State Board may have difficulty cross-referencing the new permit.

5. Commenters indicated that the proposed regulations are unclear regarding an appropriate warning label on an underground storage tank that has been cleaned and punctured. [12, 110]

Response: Subsection 2672(b)(5)(c) has been deleted. The previous requirement has been determined to be outside the jurisdiction of the proposed regulations. Subsection 2672(b) now refers to Chapter 6.5 of Division 20 of the Health and Safety Code regarding disposal of hazardous substances.

6. Commenters proposed that for permanent closure all underground storage tanks should be removed except in cases of extreme hardship and local ordinances regarding permanent closure should prevail over the proposed regulations. [111, 133]

Response: This comment is rejected. Subsection 2672(c) provides safeguards for closing an underground storage tank in-place, including removal of hazardous substances and filling the underground storage tank with inert materials. In addition, Section 25299.2 of the Health and Safety Code [formerly Section 25288.1] states that the provisions of this chapter preempt any local regulations of underground storage tanks which conflict with these provisions.

7. Commenters recommended that pipelines removed should not have to be disposed of as hazardous waste. [13, 97, 102, 110, 113, 139,]

Response: The requirement that pipelines be treated as hazardous waste has been deleted from Subsection 2672(c). Section 2672(c) now refers to Chapter 6.5 of Division 20 of the Health and Safety Code with regard to the disposal of pipelines.

8. Commenters stated that there are situations where it is not always practical to remove pipelines when closing an underground storage tank. [12, 163a]

Response: Subsection 2672(c)(2) has been amended accordingly.

9. Commenters recommended that a removable material, such as sand, should not be

permitted as the medium to fill an underground storage tank closed in-place. [4a, 4b, 111]

Response: Subsection 2672(c)(3) has been amended to eliminate the reference to sand.

10. Commenters recommended that the proposed regulations should allow storing a nonhazardous substance in an existing underground storage tank as one method of closing an underground storage tank in-place [151 151b].

Response: Subsection 2672(c)(2) has been amended accordingly with the condition that the new use of the underground storage tank must be compatible with the previous use of the underground storage tank.

**Factual Basis: Subsection (d)**

In order to determine if significant soil contamination has occurred in accordance with Section 25298(c)(4) of the Health and Safety Code [formerly Section 25286(c)(4)] , it is necessary to determine if significant soil contamination has occurred. Because the statute is unclear in that it does not define "significant soil contamination", this determination is based on site-specific conditions. The first evaluation must be to determine if any soil contamination exists which is a direct result of an unauthorized release. Therefore, the proposed regulations require a determination of "any unauthorized release" which will provide the information for local agencies and the Regional Board to evaluate if "significant soil contamination exists".

If a release has gone undetected from an underground storage tank, it is likely that some residual contaminants remain in the soil. Soil testing is, therefore, the best method to demonstrate that no leakage has occurred. In instances where it is not possible to perform soil sampling (e.g., along pipelines under a structure), other methods such as ongoing leak detection monitoring of the secondary containment system or ground water monitoring may have to be employed.

#### Comments

1. Commenters indicated that Subsection 2672(d) goes beyond the authority of Section 25298 of the Health and Safety Code [formerly Section 25286] in stating "no unauthorized release has occurred". [87g, 102, 110, 112, 139, 139c]

Response: This comment is rejected. The statute is unclear in that it does not define "significant soil contamination". This determination is based on site-specific conditions. The first evaluation must be to determine if any soil contamination exists which is a direct result of an unauthorized release. Therefore, the proposed regulations require a determination of "any unauthorized release" which will provide the information for local agencies and the Regional Board to evaluate if "significant soil contamination exists".

2. A commenter suggested that everything except the first paragraph of Subsection 2672(d) should be deleted because it is redundant. [138b]

Response: This comment is rejected. The paragraphs that the commenter wants deleted state that soil testing shall be done if feasible and describe the

procedure. These paragraphs are not redundant.

3. Commenters suggested that ongoing leak detection should not be necessary after permanent closure if the underground storage tank has been properly cleaned. [87, 53, 102]

Response: Staff rejects this comment. On-going leak detection may be necessary if the underground storage tank leaked prior to closure but the leak has not yet reached the detection well.

4. A commenter suggested that alternative monitoring methods to soil sampling should be allowed in Subsection 2672(d) and that an initial screening of substances should be allowed for Subsection 2672(d)(3). If the results are negative, no further analyses are necessary. [139]

Response: This comment is rejected. Subsection 2672(d) does provide alternatives when soil sampling is not possible. An initial screening of samples might be acceptable; however, the results would have to be positive (detected contaminants) for no further analysis for other compounds.

5. A commenter believes that the proposed regulations may require too many soil samples to be taken when a motor vehicle fuel tank is closed and that the number of samples should be left up to the local agency. [87g]

Response: This comment is rejected. The commenter has provided no information to substantiate his claim. The number of soil samples required in

Subsection 2671(d)(1) was selected to provide a reasonable degree of certainty as to whether or not an unauthorized release has occurred.

6. Commenters recommended deleting "if feasible" from Subsection 2672(d) because soil sampling is required by the statute. [4a, 4b]

Response: This comment is rejected. Section 25298(c)(4) of the Health and Safety Code [formerly Section 25286(c)(4)] requires a demonstration that there has been no significant soil contamination. Leak detection monitoring secondary containment systems and ground water monitoring do provide indirect methods for demonstrating that soil contamination has not occurred when soils sampling is not possible. There may be instances, for example, when a pipeline runs underneath structures where it would be very difficult to acquire soils samples. Under these circumstances, other methods can be used to determine that no unauthorized release has occurred. In most instances, it should be possible to collect soil samples.

7. A commenter indicated that the proposed regulations were not clear as to whether an underground storage tank could still be closed if soil contamination from another source were detected and what the allowable limits are on soil contamination. [12]

Response: This comment is rejected. Subsection 2672(d) requires that the owner must demonstrate to the satisfaction of the local agency that no unauthorized release from the underground storage tank being closed has occurred. Thus, if there is soil contamination but the owner can demonstrate to the local agency

that it was not due to an unauthorized release from the owner's underground storage tank, the proposed regulations do not prohibit proceeding with closure. This is not to say, however, that the Water Code or the Health and Safety Code will not require remedial action to be taken with regard to the contaminated soil.

8. A commenter recommended that Subsection 2672(d) be amended to allow visual inspection for soil contamination when an underground storage tank is removed if the underground storage tank contained substances such as motor vehicle fuel, waste oil, or bulk oil. If the site passes the visual inspection (no apparent contamination), no further analysis would be necessary.

Response: This comment is rejected. Laboratory analysis of soil samples as compared to visual inspection in the field reduces the possibility of human error.

#### References

American Petroleum Institute Publication 1631, 1983, "Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks"

Uniform Fire Code, Standard No. 79-6 (Draft)



# 8. Article 8, Categorical and Site-Specific Site Variance Procedures

## **Article 8. Categorical and Site-Specific Variance Procedures**

### **2680. Applicability**

#### **Specific Purpose**

The specific purpose of this article is to establish procedures for categorical and site-specific variances from Articles 3 and 4 of this subchapter.

#### **Factual Basis**

Variance procedures are needed in the proposed regulations which require that certain standards be met. Not all underground storage tank construction standards and monitoring systems are applicable to every situation. By establishing variance procedures, underground storage tank owners are allowed to propose and implement alternative systems which may meet the objectives of the law and protect surface and ground waters. Sections 25299.4 of the Health and Safety Code [formerly Sections 26299.4(a) and (c)] provide the basis for these procedures.

#### **Comments**

1. Categorical and site-specific variances should include variances from the legislative deadline for meeting the requirements of Articles 3 and 4. [113]

Response: This comment is rejected. Categorical and site-specific variances are

for the standards in Section 25291 or 25292 of the Health of Safety Code [formerly Sections 25284 and 25284.1, respectively]. The deadline for implementing these sections is not a standard. It is our belief that the compliance date is a statutory deadline which cannot be modified by a variance.

2. A commenter believed that the fees and lengthy procedures will discourage new technology. The State Board does not have adequate staff or qualified staff to implement the requirements. [12b]

Response: This comment is rejected. The fees for categorical variances are based on actual costs. The fees for site-specific variances are flat fees based on estimated staff time to process and evaluate the variance. This flat fee is consistent with other fees required by the State Board. The procedures for reviewing the variances are based on Sections 25299.4(a) and (b) of the Health and Safety Code [formerly Sections 25288.3(a) and (b), respectively]. The proposed regulations expand upon these procedures and are consistent with similar review procedures required by the State Board. The qualified staff who developed the proposed regulations will review or assist in the review of the categorical and site-specific variances.

#### Section 2681. Categorical Variances

##### Specific Purpose

The specific purpose of this section is to establish categorical variance procedures by

defining categorical variance, identifying what information is needed in the application, establishing notification and review procedures, allowing conditions to be placed on variances, defining local agency responsibilities, and allowing the State Board to modify or revoke a categorical variance.

**Factual Basis: Subsection (a)**

Subsection (a) defines categorical variances for alternative methods of construction or monitoring which are applicable to more than one local agency's jurisdiction. This definition is needed to distinguish which variance procedure should be followed. Pursuant to Section 25299.4(c) of the Health and Safety Code [formerly Section 25288.3(a)], application for categorical variances should be made by the permittee to the State Board.

**Comment**

Commenters proposed that an application for a categorical variance should be allowed by the permittee or other interested parties to the local agency. [12, 82]

Response: This comment is rejected. Section 25299.4 of the Health and Safety Code [formerly Section 25288.3] is very specific as to who may apply for a categorical variance and which agency grants the variance.

**Factual Basis: Subsections (b) and (c)**

Subsection (b) requires specific items be included in a categorical variance application. Information required by Section 25299.4(a) of the Health and Safety Code [formerly Section 25288.3(a)] includes a description of the alternative systems and circumstances under which the variance would apply, and clear and convincing evidence that the alternative system will protect the soil and water.

Other information requested includes identifying the provision from which the variance is requested and providing a list of names and addresses of persons affected or interested in the variance request. This information will assist the State Board in evaluating the variance request and assure successful public notification of the request.

Subsection (c) establishes a fee to cover the reasonable costs in considering the application. Section 25299.4(d) of the Health and Safety Code [formerly Section 25288.3(d)] gives the State Board the authority to establish a fee for reviewing categorical, site-specific variances and local agency requests for additional standards. The staff report, Discussion of Significant Issues Raised During Subchapter 16 Public Comment Period, details the calculations used to determine the flat fees and initial fees for actual cost fees. Commenters were concerned about the high fee of \$26,000 originally established for categorical variances. A review of four alternatives for categorical variance fees indicated that, to be fair and equitable, the fee should be based on actual cost. Therefore, an initial payment of \$11,000, which represents estimated staff time prior to the public hearings, has been required with adjustments prior to the public hearings and immediately after the public hearings. Depending on the adjustments, the applicant will be refunded part of the fee paid or billed for

additional payment due.

Comments

1. Commenters believed that the fee was too high. [53, 87, 102, 111, 112, 116, 126, 129, 139]

Response: The flat fee has been changed to actual cost. See above justification for details.

2. A commenter believed that the applicant should not supply the names and addresses of the local agencies and persons affected. [102]

Response: This comment is rejected. A list of affected persons needs to be submitted to the State Board for adequately noticing the public hearings. The affected persons, in this case, would be known persons and entities which have similar circumstances. The State Board will notify all affected local agencies; therefore, the requirement for submittal of these local agencies' names and addresses has been deleted from the proposed regulations.

OAL 107C)

One commenter indicated that subsections 2681(b)(2), 2681(b)(3), and 2681(b)(4) are duplicative of Section 25294.4(a)(1) of the Health and Safety Code (formerly Section 25288.3). [139, 165]

Response: This comment is rejected. This is not a case of duplication since the application requirements of Subsection (b) include three additional elements that are not duplicated from the Health and Safety Code.

(OAL 107B, 159A)

Commenters object to the requirement in 2681(b)(5) that the applicant identify all local agencies and persons who may be interested in the variance request. Commenters maintain that the determination of "all persons" is unclear and an impossible task [139, 165].

Response: This comment is rejected. The applicant is only expected to list those persons that to the best of his knowledge would be interested in the variance. This is why Subsection 2681(b)(5) says "all persons known to the applicant who...". The definition of person is contained in Section 225281(h) of the Health and Safety Code. The applicant should be able to identify many potential interested parties. Local agencies, Regional Boards and the State Board [as appropriate] may be able to develop a more complete list starting from the list provided by the applicant.

(OAL 107A)

One commenter indicated that Section 25299.4(a)(2) dictates that the Board should determine who will be affected by a categorical variance and not the permittee as required in Subsection 2681(b)(5). [139]

Response: This comment is rejected. The commenter is comparing two different processes. Subsection (b)(5) of the regulations pertains to information to be furnished to the Board by the permittee. Section 225299.4(a)(2) applies to public notice made by the Board. As stated in the above Factual Basis, the subject information provided to the Board by the permittee will help assure successful public notification of the request.

3. A commenter rejects the State Board's authority to impose a fee. [176]

Response: This comment is rejected. Section 25299.4(d) of the Health and Safety Code [formerly Section 25288.3(d)] clearly gives the State Board the authority to set fees.

Factual Basis: Subsections (d) - (f)

Subsection (d) involves the State Board notifying the applicant within 30 days of receipt of the application as to whether the application is complete. This is required by Governmental Code Section 65943. Similar notification times are established in water rights and waste discharge requirements applications.

Subsection (e) requires the State Board to prepare any necessary CEQA documents on the impacts of alternative systems. Since the State Board is the lead agency, this is their responsibility.



Subsection (f) requires the State Board to remand the application to the Regional Board, if appropriate. This is established in Section 25299.4(a) of the Health and Safety Code [formerly Section 25288.3(a)].

Comment

(OAL 161B)

A commenter ~~requested clarification~~ stated that the regulations are not clear on whether the appropriate fee will be remanded if the State Board remands the application to the Regional Board. [168b]

Response: This comment is rejected. The regulations are clear in that Subsection 2681 (c) states that the applicant will only be charged for actual State Board costs in considering the categorical variance application and that the State Board will refund any remaining part of the initial fee. In the case where the State Board remands the application to a Regional Board, the State Board will only retain from the filing fee its processing costs incurred. Since the Division of Administration Services handles both the State and Regional Board finances, the remainder of the filing fee can be transferred into the appropriate account for the Regional Board. If the fee charged by the Regional Board is more or less than the amount of money transferred from the State Board, then the applicant will be charged the additional cost or receive a refund, as appropriate.

~~Response/ This comment is rejected/ W the amendments rule which states 2682 of this title/ it is the responsibility of Section 2682 will apply/ including appropriate~~

*1999/ Any fees paid to the State Board will be applied to the Regulatory Board with any refunds going back to the applicant/*

**Factual Basis: Subsections (g) - (k)**

Subsection (g) requires the State Board to hold at least two public hearings within 180 days of receipt of the completed variance request. The public hearings must be held in two different locations and require at least 10 days notice. The two public hearings in two different locations are mandated by Section 25299.4(a) of the Health and Safety Code [formerly Section 28288.3(a)]. The State Board staff needs most of this time to review the variance request due to the potential complexity of these requests. The remainder of the time (usually at least 30 days) is needed to prepare for and notice the public hearings.

Subsection (h) identifies the basis upon which the State Board will make its decision on the variance. This is consistent with existing procedures at the State Board for accepting evidence and testimony.

Subsection (i) instructs the State Board to describe the specific alternative system and any conditions in granting the variance. By identifying the alternative system and conditions in a written variance, the State Board is providing the applicant with a document to show the local agency for issuance of a permit for the system.

Confusion as to what alternative system and conditions are included in the variance is avoided by having the State Board specify exactly what constitutes the variance and its conditions.

Subsection (j) requires applicants to attach a copy of the approved variance to the permit application for local agency review for applicability. This gives local agencies clear direction to approve permits for alternative systems which are not included in the proposed regulations.

Subsection (k) allows the State Board to modify or revoke any variance which does not adequately protect the soils and waters of the State. Should the State Board determine that they made an error in approving a variance or if the alternative system does not perform as expected, the State Board can reevaluate its approval of the variance. All alternative systems approved must protect the soils and waters of the State.

#### Comment

#### (OAL 159B)

One commenter recommended that Subsection 2681(g) be amended to require that the two public hearings be held in areas that are directly affected by the categorical variance in order to assure that the appropriate, affected parties are notified [165].

Response: This comment is rejected. In contrast to a site specific variance which applies to only one area, a categorical variance applies to the entire state. With regard to areas that may be more directly affected by the categorical variance, Section 25299.4 (2) of the Health and Safety Code states that the Board shall give notice to all affected cities and counties as well as other cities and counties. Further, Section

25299.4 (3) states that the Board shall hold at least two public hearings in different areas of the state, as selected by the Board. Subsection 2681 (g) does not preclude the Board from holding a hearing in an affected area; however, the Board may take into consideration accessibility, population centers, etc. in addition to any affected areas, when determining where to conduct the hearing.

#### Deleted Sections and Editorial Changes

Subsections (g), (h), and (j) were deleted in response to comments and due to duplication and lack of clarity. [102, 139]

Subsection (c) was added to clarify the fee schedule.

Subsections (a), (b), (f), (i), (l), and (k) were edited for clarity and to eliminate duplication. Some of these subsections were renumbered.

#### Section 2682. Site-Specific Variances

##### Specific Purpose

The specific purpose of this section is to establish site-specific variance procedures by defining site-specific variance, identifying what information is needed in the application, establishing notification and review procedures, allowing conditions to be placed on a variance, defining local agency's responsibilities, and allowing the Regional Board to modify or revoke a site-specific variance.

Factual Basis: Subsection (a)

Subsection (a) defines site-specific variance as an alternative construction or monitoring method which is applicable at one or more sites within one local agency's jurisdiction. This definition is needed to distinguish which variance procedures should be followed, Section 2681 or 2682. As established in Section 25299.4(c) of the Health and Safety Code [formerly Section 25288.3(c)], application for a site-specific variance is made by the permittee to the Regional Board.

Comments

1. Commenters felt the variance approval should be made by the local agency, not the Regional Board. [12, 120]

Response: This comment is rejected. Section 25299.4(c) of the Health and Safety Code [formerly Section 25288.3(c)] identified the Regional Board as the authority to grant site-specific variances with input from the local agency. The State Board has no authority to change this requirement. However, in certain circumstances, the local agency has some discretion on determining the monitoring alternative.

2. Commenters proposed that the definition of site-specific variance be expanded to include more than one site within one local agency's jurisdiction. [109a, 109b]

Response: The definition has been broadened.

3. A commenter requested all areas throughout the State which are not overlying ground water should be exempt from the proposed regulations. [37]

Response: This comment is rejected. These are the circumstances under which a site-specific variance could be requested. The applicant could attempt to demonstrate that the standards of Sections 25284 and 25284.1 are not necessary to protect soil and/or ground water. There is no provision for the State Board to consider a variance without a specific proposal as to how an alternate system will provide the appropriate protections.

Factual Basis: Subsection (b) - (d)

Subsection (b) requires that the permittee submit to the local agency, 60 days prior to requesting a variance from the Regional Board, a complete construction and monitoring plan. The local agency must then decide within 60 days if a site-specific variance is needed. The 60-day time frame is a reasonable amount of time for the local agency to review the proposal and act on the need for a variance before the permittee submits the plan to the Regional Board. Should the local agency not reach a decision within 60 days as to whether or not a variance is required, the permittee may proceed with the application. This is provided so an applicant's request is not lost in the system and no project is ever approved without proper and timely review. This subsection clarifies Section 25299.4(c) of the Health and Safety Code [formerly Section 25288.3(c)].

Subsection (c) identifies what items are required to be included in the variance request. Information required by Section 25299.4(c) of the Health and Safety Code [formerly Section 25288(c)] includes a description of the alternative system, special circumstances that strict application of Articles 3 and 4 of this subchapter are not necessary to protect the soils and waters of the State or strict application of Articles 3 and 4 would create practical difficulties not applicable to the facilities, and evidence that the proposed alternatives will protect the soils and waters.

Other information requested includes citing the provisions from which the variance is requested and submitting any CEQA documents. This information is needed to evaluate and legally process the variance request.

Section 25299.4(d) of the Health and Safety Code [formerly Section 25288.3(d)] allows the State Board to establish a fee to cover reasonable costs. The development of the fee schedule is detailed in the staff report, Discussion of Significant Issues Raised During the Subchapter 16 Public Comment Period. Commenters believed the proposed flat fee of \$7,500 was too high and limited the number of applicants which would request a variance.

A reevaluated flat fee schedule for site-specific variances has been included in the proposed regulations. This fee is \$2,750 for site-specific variances located at one facility and \$5,500 for site-specific variances located at more than one facility. The lower costs exclude public hearing costs since the public hearing will be a regularly scheduled meeting. The reasoning for going with the flat fee is (1) this fee is considerably lower than previously proposed and is consistent with other fees charged

by the State Board, and (2) accounting for staff time in actual cost fees has proven to be difficult and inaccurate in small-hydro water rights applications. The State Board can more closely account for staff time for categorical variances and local agency requests since there will be fewer requests and specific staff will be working on the requests, whereas many more site-specific variances at the Regional Boards are expected. It is anticipated that the area engineers which handle all problems within a specific area will handle the variances as an additional task. This system makes it very difficult to account for time on one specific variance request.

#### Comments

1. Commenters were concerned about the high fee. [77, 86, 94b, 100, 100b, 102, 142b]

Response: The fee has been lowered. See above justification.

2. A commenter rejected the State Board's authority to establish a fee. [176]

Response: This comment is rejected. Section 25299.4(d) of the Health and Safety Code [formerly Section 25288.3(d)] clearly gives the State Board authority to establish a fee.

Factual Basis: Subsections (d) - (e)



Subsection (d) requires the Regional Board to notify the applicant within 30 days as to whether or not the application is complete. This requirement is consistent with other similar administrative procedures required of the Regional Boards.

Subsection (e) requires the Regional Board to hold a public hearing within 60 days of receipt of the completed variance. This is required by Section 25299.4(c) of the Health and Safety Code [formerly Section 25288.3(c)]. The public hearing which must be noticed 10 days in advance is consistent with existing Regional Board procedures.

Comments:

1. Commenters believed that there is a typographical error. [53, 87, 113, 138] .

Response: That part of the subsection was deleted because it duplicates sections of the Government Code.

2. Commenters were concerned over the timing of the Regional Board's public hearing. [168, 168b]

Response: This comment is rejected. This subsection and Section 25299.4(c) of the Health and Safety Code [formerly Section 25288.3(c)] describe the time frame within which the Regional Board must have a public hearing. Section 25299.4(c) of the Health and Safety Code [formerly Section 25288.3(c)] establishes a 60-day deadline for the Regional Board to hold a public hearing.

**Factual Basis: Subsection (f)**

Subsection (f) instructs the Regional Board to describe the specific alternative and any conditions in granting the variance. The Regional Board must notify the applicant and local agency of its decisions. By having the Regional Board specify exactly what constitutes the variance and the conditions avoids confusion as to what alternative system and conditions are in the variance.

**Comment:**

A commenter believed that the Regional Board should notify the State Board of any decisions on variance requests to review and monitor. [168b]

Response: This comment is rejected. The State Board does not have the resources to review each and every site-specific variance on a routine basis. Should a Regional Board decision on a site-specific variance be appealed, the State Board would then review the variance request.

**Factual Basis: Subsections (g) - (i)**

Subsection (g) requires the Regional Board to consider the local agency's recommendation and the completeness and accuracy of the variance application in rendering its decision. This is required by the Section 25299.4(c) of the Health and Safety Code [formerly Section 25288.3(c)].

Subsection (h) requires the local agency to issue, without modifications, a permit with the conditions prescribed by the Regional Board if the variance is approved. The purpose of granting variances is so the applicant can obtain an operating permit for the underground storage tank. Therefore, when a variance is approved, a permit must also be approved.

Subsection (i) allows the Regional Board to modify or revoke any variance which does not adequately protect the soils and waters of the State. Should the Regional Board determine that they made an error in approving a variance or if the alternative system does not perform as expected, the Regional Board can reevaluate its approval of the variance. All alternative systems approved must protect the soils and waters of the State.

#### Deleted Sections and Editorial Changes

Subsections (c), (d), and (h) were deleted because they duplicate Section 25299.4(c) of the Health and Safety Code [formerly Section 25288.3(c)] and sections of the Government Code.

Subsections (a), (e), (g), (i), and (l) have had editorial changes made for clarity and parts deleted because they are duplicative of the law. Some subsections were renumbered to reflect the additions and deletions to this section.

## 9. Article 9, Local Additional Standards Request Procedures

## **Article 9. Local Additional Standards Request Procedures**

### **2690. Applicability**

#### **Specific Purpose**

The specific purpose of this article is to establish procedures for local agencies to request State Board authorization for more stringent standards than those set by Article 3 of this subchapter.

#### **Factual Basis**

Section 25299.4(b) of the Health and Safety Code [formerly Section 25288.3(b)] provides a mechanism through which the local agencies can request more stringent requirements. Additional procedures are needed to provide more guidance to local agencies in their requests.

### **2691. Additional Standards Request Procedures**

#### **Specific Purpose**

The specific purpose of this section is to establish procedures for local agency requests for more stringent standards than those set by Article 3. The procedures include identifying information needed by the State Board to evaluate the request, a fee structure, and provisions for the State Board to modify or revoke additional

standards.

Factual Basis: Subsections (a) and (b)

Subsection (a) identifies the items to be submitted by the local agency when applying for additional standards. Description of the proposed design and construction standards, evidence identifying the need for the additional standards, and a fee are required by Sections 25299.4(b) and (c) of the Health and Safety Code [formerly Sections 25288.3 (b) and (c), respectively]. Additional information requested includes evidence that the additional standards will protect the soils and waters of the State, and any necessary CEQA documents. This information is needed by State Board staff to evaluate the ability of the additional standards to protect soils and waters of the State.

Subsection (b) clarifies previous proposed regulations which required local agencies requesting design and construction standards, in addition to those set forth in Article 3, to pay an application fee of \$11,500. Details on the fee calculations are in the staff report, Discussion of Significant Issues Raised During Subchapter 16 Public Review. If the public hearing could be a regularly scheduled hearing, the costs could be lowered to \$5,500. The initial fee reflects the cost of 0.1 staff years at an engineering associate level. However, in fairness to all local agencies which may have differing complexities to the requested variance, the fee will be established on an actual cost basis with an initial fee of \$5,500.

Comments

1. Commenters said Subsection 2691(a)(2) needs an editorial change to bring the subsection in line with the law. [110, 139, 139c]

Response: This comment is rejected. There is no need to duplicate the statute. However, the subsection clarifies the requirement that any proposed additional standards must protect the soil and beneficial uses of the soil.

2. Commenters felt that the fees were too high. [9, 14b, 111, 120]

Response: The fee has been changed to actual cost with an initial fee of \$5,500. Any refund or additional money due the State Board will be determined after review of the request for additional standards. Details are described above.

3. Commenters believed that local agencies should have the authority to require additional requirements or modified regulations. [12, 120, 176]

Response: This comment is rejected. Section 29299.4(b) of the Health and Safety Code [formerly Section 25288.3(b)] clearly indicates the State Board has exclusive authority to grant additional standards. Local agencies have ample discretion under the proposed regulations to tailor permit conditions to site-specific conditions.

4. A commenter rejected the State Board's authority to establish a fee. [176]

Response: This comment is rejected. Section 25299.4(d) of the Health and Safety Code [formerly Section 25288.3(d)] clearly gives the State Board the authority to establish a fee.

Factual Basis: Subsection (c) and (d)

Subsection (c) requires the State Board to conduct an investigation and public hearing. These procedures are consistent with existing State Board procedures.

Subsection (d) allows the State Board to modify or revoke any authorization to implement additional standards. Should the State Board determine that it made an error in approving the additional standards based on proof that the additional standards do not protect the soil and water of the State as expected, or are not really needed, the State Board can reevaluate its decision on the additional standards.

Deleted Sections and Editorial Changes

Subsections (c), (d), and (e) were deleted in response to comments and because they duplicated the law.

Subsections (a), (b), and (f) contain editorial changes. These subsections have been renumbered due to the deletions previously discussed.



# 10. Article 10, Permit Application, Annual Report, and Trade Secret Requirements

Article 10. Permit Application, Annual  
Report, and Trade Secret Requirements

Section 2710. Applicability

Specific Purpose

The specific purpose of this section is to establish permitting procedures and conditions, procedures for updating permit information and reporting any unauthorized releases through the annual report, and trade secret provisions.

Factual Basis

Local agencies are required to implement a regulatory program to assure the requirements set forth in Articles 3 and 4 of this subchapter are met. In order to develop a uniform statewide data base on underground storage tanks, standard procedures must be established. The regulatory program consists of permits, reporting requirements, and inspections. To update the statewide data base on underground storage tanks, updated permit information and unauthorized release reports will be sent to the State Board. To protect proprietary products, trade secrets will be handled in confidence only by authorized personnel.

Section 2711. Permit Application and Information

Specific Purpose

The specific purpose of this section is to identify what information is included in the permit application and what fees are required.

#### Factual Basis

Subsection (a) identifies the information needed in the permit application. The following information is in addition to what is required by Section 25286(b) of the Health and Safety Code [formerly Section 25283.2(b)].

1. Underground storage tank operation methods and schedules are required to assist the local agency in deciding the frequency of monitoring.
2. Installation procedures and backfill are required because improper installation and backfilling are the primary causes for leaking underground storage tanks.
3. A diagram indicating the location of the underground storage tanks on the property is required for several reasons: the location of a monitoring system can be determined, leaking underground storage tanks can be identified, and underground storage tanks can be removed or inspected.
4. A list of previously stored chemicals is required to determine compatibility with underground storage tank construction and currently stored chemicals.
5. The permit application must be signed by a high-level responsible representative to assure that the information is correct.

## Comments

1. Commenters felt much of the information requested in the permit application duplicated information requested in the Hazardous Substance Storage Statement and the statute. [53, 87, 102, 138, 138b, 139]

Response: This comment is rejected. The permit application information is specifically required in Section 25286 of the Health and Safety Code [formerly Section 25283.2]. In order to have a uniform statewide data base as required in AB 2013 (Cortese), much of the information requested was taken from AB 1362. Furthermore, all new applications for operating an underground storage tank will need to include this information. Staff felt two different permit application forms would be confusing and unjustifiably costly.

2. A commenter felt that everywhere "owner" is printed in the proposed regulations (i.e., owner obtains the permit) should be changed to owner/operator since the owner often has nothing to do with the operation of the underground storage tank. [12]

Response: This comment is rejected. Section 25286(a) of Health and Safety Code [formerly Section 25282.3(a)] specifically cites the owner as the applicant for a permit. Section 25293 of the Health and Safety Code [formerly Section 25284.2] requires the owner to enter into a written contract with the operator which in turn requires the operator to monitor the underground storage tank as set forth in the permit.

3. Commenters requested previously stored chemicals be deleted from the required permit information. [97, 139].

Response: This comment is rejected. Previously stored chemicals are vital information in determining the integrity of the underground storage tank. Should the previously stored chemicals be incompatible with the materials the underground storage tank is constructed of or with currently stored chemicals, the underground storage tank has the potential to leak.

4. A commenter requested that application and manual information be submitted to the State Board electronically or by computer tapes. [117]

Response: The paragraph requesting a copy of the approved application be submitted to the State Board has been deleted. However, this information must be submitted by the local agency to the State Board in a format approved by the State Board. This format includes computer interfacing.

5. A commenter wanted to use its own permit application and any additional information on forms should be sent to the State Board by the permittee. [116]

Response: This comment is rejected. Sections 25286 and 25299.1(a) of the Health and Safety Code [formerly Sections 25283.2(a) and 25288(a), respectively] specifically require the local agency to submit permit information to the State Board in a form compatible with statewide data. The local agency may use its own permit application form; however, the permit application information requested on the State Board standardized permit application must be submitted

to the State Board in a format approved and compatible with the statewide data base. The State Board will be receiving information from 58 counties and approximately 54 cities. If this information is not submitted in a standardized form, the information cannot be entered into a computerized data base.

6. Commenters would like the permit application surcharge to be deleted. [120, 80, 80a]

Response: This comment is rejected. Although this section was deleted from the proposed regulations because it duplicates the law effective January 1, 1985, it specifically requires all counties except a county of the fifth class to collect a surcharge for the State Board.

7. A commenter felt the local agency and State Board should supply the permittee with a detailed cost justification for the permit application fee and the fee be assessed on a case-by-case basis. [102]

Response: This comment is rejected. To assess a permit fee on a case-by-case basis is absurd and would significantly increase the permit fee for no justifiable reason. The local agency and State Board are not required by law to provide the permittee with cost justification. The surcharge, which included in the application fee, is based on the State Board's cost to administer to underground storage tank program divided by the number of underground storage tanks which will be issued a permit. This is an equitable method to determine the fee. The local agencies will have similar approaches in determining their fees.

8. A commenter did not want to submit underground storage tank location diagrams or as-builts since this information cannot be placed on the computer data base.

[139]

Response: This comment is rejected. The underground storage tank location is important to the local agency which has the responsibility of inspecting the underground storage tank system. See Factual Basis Subsection (a)(3) for more reasons to include diagrams.

9. Commenters requested a section be add specific to membrane liners. [154, 159d]

Response: The provision has been added.

#### Factual Basis

Subsection (b) requires a fee to be changed to cover the local agency's costs. Section 25287 of the Health and Safety Code [formerly Section 25283.3(a)] requires these fees.

#### Comment

Commenters objected to collecting a surcharge fee with each permit application to cover the costs for the State Board to implement the underground storage tank program. [80, 80a]

Response: This comment is rejected. The surcharge wording was removed from the proposed regulations because of duplication with the statute. The statute clearly

states that the implementing local agency is required to collect and submit the surcharge fee to the State Board as per Section 25287 of the Health and Safety Code [formerly Sections 25283.3(b) and (c)].

#### Deleted Sections and Editorial Changes

Subsection (a) was deleted because it was duplicative of the law.

Editorial changes were made in Subsections (a) and (b).

#### Section 2712. Permit Conditions

##### Specific Purpose

The specific purpose of this section is to describe the conditions local agencies must include in all permits and the conditions local agencies must meet prior to issuing the permit.

##### Factual Basis

Subsection (a) requires the permittee to notify the local agency of any changes in the storage of hazardous substances or monitoring procedures within 30 days. Sections 25286 of the Health and Safety Code [formerly Sections 25283.2(c) and (d), respectively] require this notification. In addition, the permittee must notify the local agency of any replacement or repair of the underground storage tank. This notification will allow the local agency to review replacement or repair for



compatibility with the hazardous substances and proper installation or repair procedures.

#### Comment

A commenter requested wavier of notification of 30 days prior to repair or replacement of an underground storage tank. [114]

Response: The proposed regulations have been changed to be consistent with the statute which states notification is required within 30 days after any changes.

#### Factual Basis

Subsection (c) requires all monitoring records be maintained for three years and details which information should be included in the monitoring records. Sections 25294 and 25295 of the Health and Safety Code [formerly Sections 25284.3 and 25284.4(a), respectively] require that monitoring records be kept. Three years is an appropriate length of time to hold records because (1) should a slow leak exist, records could be searched to determine when the leak began and the quantity of substance released--a slow leak may take three years to detect, (2) Section 25295 of the Health and Safety Code [formerly Section 25284.4(a)] requires an unauthorized release be reported when the release should have been detected--a review of monitoring records could determine at what point in the leak should have been detected, and (3) inspections are required every three years and retaining the records for three years will provide a complete review since the last inspection.

### Comment

Commenters were concerned over the requirement to hold three years of monitoring on-site because of the volume of material. [102k, 168b]

Response: This comment is rejected. Many local agency inspectors will want to inspect facilities unannounced. The monitoring records are a vital part of the inspection and thus must be kept on site at all times.

### (OAL 161C)

One commenter indicated that retaining monitoring records for three years as required in Subsection (c), when a permit is issued for five years, is inappropriate, and that records should be maintained during the permit life and at least one year following renewal [168b].

Response: This comment is rejected. Section 25288 of the Health and Safety Code requires inspections to be conducted at least once every three years. ~~/XXXXXX/~~  
~~XX records should be available during at least one inspection/XXXX~~ Records can be reviewed and summarized during the inspection. Therefore, even though five years of records will not be available during any one inspection, the summaries of past inspections should be available. In addition, the local agency, pursuant to Subsection (c), may require submittal of the records or a summary at a frequency they establish. Storing records for six years would require twice the storage space required to store records for three years, which commenters have already objected to.

(OAL 1A)

One commenter recommended that random tank inspections should be made to ensure compliance with monitoring requirements [155b].

Response: This comment is rejected. It is not necessary to amend the regulations to authorize or encourage local agencies to institute an inspection program using random inspections. Although the regulations do not specifically require random inspections, Subsection 2712(c) requires that monitoring records be maintained on-site in order to accomodate unscheduled inspections.

(OAL 89)

One commenter indicated that on-site inspection of installation practices may pose a burden to local agencies responsible for large jurisdictional areas, and that local agencies should have the option of requiring an installation certification [117c].

Response: This comment is rejected. Requiring an installation certification may be acceptable for types of construction that are not hidden from inspection in the future; however the construction requirements in these regulations do not fit into that category. For example, once a membrane liner for secondary containment is backfilled, there is no way to inspect the integrity of that liner, short of excavating the underground tank. The local agency will have to set fees to support the staff needed for inspections.

(OAL 6)

One local agency commented that it issues interim permits with compliance schedules, and that it will be impossible to continue its program, because the regulations require that a leak detection system be installed prior to issuing a permit [9].

Response: This comment is rejected. Section 25283 of the Health and Safety Code states that "Every county shall implement this chapter pursuant to the regulations adopted by the Board". Section 25299.2 states that the provisions of this chapter preempt any local regulations relating to the protection of soil and water from underground storage tanks. Therefore, any local agency not exempt under Section 25299.1 will have to implement the Board's regulations. The August 23 1984 draft of the regulations did include an interim permit and a time for compliance, but this was later deleted from the regulations because it was not supported by the statute. The regulations require that the leak detection system be in place prior to issuing a permit in order to comply with Section 25285 of the Health and Safety Code which states that the local agency shall not issue a permit if the local agency inspects the tank and determines that the tank does not comply with this chapter. In addition, after July 1, 1985, Section 25292 of the Health and Safety Code requires that all existing underground storage tanks comply with the monitoring requirements of that section. New tanks must meet the requirements of Section 25291 when they are installed. Therefore, after July 1, 1985, even if an interim permit could be issued prior to the permit in the statute, it would be of little use, since a compliance schedule would be contrary to the statute. Thus, the commenter will have to modify its current permit program to comply with the statute.

#### Factual Basis

Subsection (d) specifies that the operating permit is effective for five years, the local agency must inspect the underground storage tank before issuing the permit, and an application for permit renewal is to be submitted at least 180 days prior to expiration of the existing permit. The five-year effective period is determined by Section 25285(a) of the Health and Safety Code [formerly Section 25283.1]. Inspection of the

underground storage tank prior to issuing a permit is required to determine if the underground storage tank is in safe operating condition and meets the criteria set forth in Articles 3 and 4. Permit renewal 180 days prior to permit expiration is to give the local agency time to review and approve the permit without placing the underground storage tank owner in a position of operating an underground storage tank without a permit.

#### Comment

Commenters questioned the five-year life of an underground storage tank operating permit. [15b, 111, 139]

Response: This comment is rejected. Section 25285 of the Health and Safety Code [formerly Section 25283.1] establishes the effective life of an operating permit. The State Board has no authority to change the time period.

#### Factual Basis

Subsection (c) allows the local agency 18 months after establishing a program to issue an underground storage tank operating permit. Recent legislation requires local agencies to implement an underground storage tank program by July 1, 1985.

Logistically, local agency cannot issue permits for all underground storage tanks by that date. This 18-month provision allows the local agency a reasonable time for issuing operating permits for all underground storage tanks requiring permits.

#### Comments

Article 10. Permit Application, Annual  
Report, and Trade Secret Requirements

Section 2710. Applicability

Specific Purpose

The specific purpose of this section is to establish permitting procedures and conditions, procedures for updating permit information and reporting any unauthorized releases through the annual report, and trade secret provisions.

Factual Basis

Local agencies are required to implement a regulatory program to assure the requirements set forth in Articles 3 and 4 of this subchapter are met. In order to develop a uniform statewide data base on underground storage tanks, standard procedures must be established. The regulatory program consists of permits, reporting requirements, and inspections. To update the statewide data base on underground storage tanks, updated permit information and unauthorized release reports will be sent to the State Board. To protect proprietary products, trade secrets will be handled in confidence only by authorized personnel.

Section 2711. Permit Application and Information

### Specific Purpose

The specific purpose of this section is to identify what information is included in the permit application and what fees are required.

### Factual Basis

Subsection (a) identifies the information needed in the permit application. The following information is in addition to what is required by Section 25286(b) of the Health and Safety Code [formerly Section 25283.2(b)].

1. Underground storage tank operation methods and schedules are required to assist the local agency in deciding the frequency of monitoring.
2. Installation procedures and backfill are required because improper installation and backfilling are the primary causes for leaking underground storage tanks.
3. A diagram indicating the location of the underground storage tanks on the property is required for several reasons: the location of a monitoring system can be determined, leaking underground storage tanks can be identified, and underground

storage tanks can be removed or inspected.

4. A list of previously stored chemicals is required to determine compatibility with underground storage tank construction and currently stored chemicals.
5. The permit application must be signed by a high-level responsible representative to assure that the information is correct.

#### Comments

1. Commenters felt much of the information requested in the permit application duplicated information requested in the Hazardous Substance Storage Statement and the statute. [53, 87, 102, 138, 138b, 139]

Response: This comment is rejected. The permit application information is specifically required in Section 25286 of the Health and Safety Code [formerly Section 25283.2]. In order to have a uniform statewide data base as required in AB 2013 (Cortese), much of the information requested was taken from AB 1362. Furthermore, all new applications for operating an underground storage tank will need to include this information. Staff felt two different permit application forms would be confusing and unjustifiably costly.



3. Commenters requested previously stored chemicals be deleted from the required permit information. [97, 139].

Response: This comment is rejected. Previously stored chemicals are vital information in determining the integrity of the underground storage tank. Should the previously stored chemicals be incompatible with the materials the underground storage tank is constructed of or with currently stored chemicals, the underground storage tank has the potential to leak.

4. A commenter requested that application and manual information be submitted to the State Board electronically or by computer tapes. [117]

Response: The paragraph requesting a copy of the approved application be submitted to the State Board has been deleted. However, this information must be submitted by the local agency to the State Board in a format approved by the State Board. This format includes computer interfacing.

5. A commenter wanted to use its own permit application and any additional information on forms should be sent to the State Board by the permittee. [116]

Response: This comment is rejected. Sections 25286 and 25299.1(a) of the Health and Safety Code [formerly Sections 25283.2(a) and 25288(a), respectively] specifically require the local agency to submit permit information to the State Board in a form compatible with statewide data. The local agency may use its own permit application form; however, the permit application information requested on the State Board standardized permit application must be submitted

4. A commenter requested that application and manual information be submitted to the State Board electronically or by computer tapes. [117]

Response: The paragraph requesting a copy of the approved application be submitted to the State Board has been deleted. However, this information must be submitted by the local agency to the State Board in a format approved by the State Board. This format includes computer interfacing.

5. A commenter wanted to use its own permit application and any additional information on forms should be sent to the State Board by the permittee. [116]

Response: This comment is rejected. Sections 25286 and 25299.1(a) of the Health and Safety Code [formerly Sections 25283.2(a) and 25288(a), respectively] specifically require the local agency to submit permit information to the State Board in a form compatible with statewide data. The local agency may use its own permit application form; however, the permit application information requested on the State Board standardized permit application must be submitted to the State Board in a format approved and compatible with the statewide data base. The State Board will be receiving information from 58 counties and approximately 54 cities.

If this information is not submitted in a standardized form, the information cannot be entered into a computerized data base.

6. Commenters would like the permit application surcharge to be deleted. [120, 83, 83a]

Response: This comment is rejected. Although this section was deleted from the proposed regulations because it duplicates the law effective January 1, 1985, it specifically requires all counties except a county of the fifth class to collect a surcharge for the State Board.

7. A commenter felt the local agency and State Board should supply the permittee with a detailed cost justification for the permit application fee and the fee be assessed on a case-by-case basis. [102]

Response: This comment is rejected. To assess a permit fee on a case-by-case basis is absurd and would significantly increase the permit fee for no justifiable reason. The local agency and State Board are not required by law to provide the permittee with cost justification. The surcharge, which included in the application fee, is based on the State Board's cost to administer to underground storage tank program divided by the number of underground

storage tanks which will be issued a permit. This is an equitable method to determine the fee. The local agencies will have similar approaches in determining their fees.

8. A commenter did not want to submit underground storage tank location diagrams or as-built since this information cannot be placed on the computer data base. [139]

Response: This comment is rejected. The underground storage tank location is important to the local agency which has the responsibility of inspecting the underground storage tank system. See Factual Basis Subsection (a)(3) for more reasons to include diagrams.

9. Commenters requested a section be add specific to membrane liners. [154, 159d]

Response: The provision has been added.

#### Factual Basis

Subsection (b) requires a fee to be changed to cover the local agency's costs. Section 25287 of the Health and Safety Code [formerly Section 25283.3(a)] requires these fees.

#### Comment

Commenters objected to collecting a surcharge fee with each permit application to cover the costs for the State Board to implement the underground storage tank program. [30, 30a]

Response: This comment is rejected. The surcharge wording was removed from the proposed regulations because of duplication with the statute. The statute clearly states that the implementing local agency is required to collect and submit the surcharge fee to the State Board as per Section 25287 of the Health and Safety Code [formerly Sections 25283.3(b) and (c)].

#### Deleted Sections and Editorial Changes

Subsection (a) was deleted because it was duplicative of the law.

Editorial changes were made in Subsections (a) and (b).

#### Section 2712. Permit Conditions

##### Specific Purpose

The specific purpose of this section is to describe the conditions local agencies must include in all permits and the conditions local agencies must meet prior to issuing the permit.

### Factual Basis

Subsection (a) requires the permittee to notify the local agency of any changes in the storage of hazardous substances or monitoring procedures within 30 days. Sections 25235 of the Health and Safety Code [formerly Sections 25235.2(c) and (d), respectively] require this notification. In addition, the permittee must notify the local agency of any replacement or repair of the underground storage tank. This notification will allow the local agency to review replacement or repair for compatibility with the hazardous substances and proper installation or repair procedures.

### Comment

A commenter requested waiver of notification of 30 days prior to repair or replacement of an underground storage tank. [114]

Response: The proposed regulations have been changed to be consistent with the statute which states notification is required within 30 days after any changes.

### Factual Basis

Subsection (c) requires all monitoring records be maintained for three years and details which information should be included in

the monitoring records. Sections 25294 and 25295 of the Health and Safety Code [formerly Sections 25284.3 and 25284.4(a), respectively] require that monitoring records be kept. Three years is an appropriate length of time to hold records because (1) should a slow leak exist, records could be searched to determine when the leak began and the quantity of substance released--a slow leak may take three years to detect, (2) Section 25295 of the Health and Safety Code [formerly Section 25284.4(a)] requires an unauthorized release be reported when the release should have been detected--a review of monitoring records could determine at what point in the leak should have been detected, and (3) inspections are required every three years and retaining the records for three years will provide a complete review since the last inspection.

#### Comment

Commenters were concerned over the requirement to hold three years of monitoring on-site because of the volume of material. [102k, 168b]

Response: This comment is rejected. Many local agency inspectors will want to inspect facilities unannounced. The monitoring records are a vital part of the inspection and thus must be kept on site at all times.

### Factual Basis

Subsection (d) specifies that the operating permit is effective for five years, the local agency must inspect the underground storage tank before issuing the permit, and an application for permit renewal is to be submitted at least 180 days prior to expiration of the existing permit. The five-year effective period is determined by Section 25285(a) of the Health and Safety Code [formerly Section 25283.1]. Inspection of the underground storage tank prior to issuing a permit is required to determine if the underground storage tank is in safe operating condition and meets the criteria set forth in Articles 3 and 4. Permit renewal 180 days prior to permit expiration is to give the local agency time to review and approve the permit without placing the underground storage tank owner in a position of operating an underground storage tank without a permit.

### Comment

Commenters questioned the five-year life of an underground storage tank operating permit. [15b, 111, 139]

Response: This comment is rejected. Section 25285 of the Health and Safety Code [formerly Section 25283.1] establishes the effective life of an operating permit. The State Board has no authority to change the time period.



### Factual Basis

Subsection (c) allows the local agency 15 months after establishing a program to issue an underground storage tank operating permit. Recent legislation requires local agencies to implement an underground storage tank program by July 1, 1985. Logistically, local agency cannot issue permits for all underground storage tanks by that date. This 18-month provision allows the local agency a reasonable time for issuing operating permits for all underground storage tanks requiring permits.

### Comments

1. Commenters suggested criteria be established as to what constitutes establishment of a local agency's underground storage tank program. [140b, 140c]

Response: This comment is rejected. Approximately 58 counties and 54 cities will be implementing a local underground storage tank regulatory program. The degree in which the programs will be implemented will differ in as many ways as there are local agencies implementing a program. The State Board has no oversight authority over how the local agencies implement this program.

2. A commenter related that the 18-month provision should be also an exemption for underground storage tank owners' to comply with the law. [138b]

Response: This comment is rejected. The deadline for complying with the statute is established by Sections 25291 and 25292 of the Health and Safety Code [formerly Sections 25284 and 25234.1, respectively].

#### Factual Basis

Subsection (f) allows operating permits to be transferred to new owners under specific conditions. Section 25288(b) of the Health and Safety Code [formerly Section 25283(b) gives authority for these transfers.

Subsection (g) requires underground storage tanks to be inspected at least once every three years and meet standards in Articles 3 and 4 before receiving a permit. This is pursuant to Section 25298(c) of the Health and Safety Code [formerly Section 25283.4(a)] for verifying compliance is necessary before issuing a permit.

#### Comments

1. Commenters questioned the frequency of inspection of

underground storage tanks which is at least every three years. [139, 111]

Response: This comment is rejected. Section 25288(a) of the Health and Safety Code [formerly Section 25233.4(a)] establishes the inspection schedule of at least every three years. Under this provision, underground storage tanks can be inspected annually or at a frequency more often than once every three years. The State Board has no authority to change the frequency of inspections.

2. A commenter was concerned over inspecting an underground storage tank within two years of the permit and then inspecting this in the third year. [168b]

Response: This comment is rejected. The proposed regulations require an inspection prior to issuing a permit with an inspection of the underground storage tank every three years. There is no conflict or excessive inspections due to the proposed regulations. If the inspections are completed every three years, the underground storage tank will have been inspected within three years prior to the permit renewal.

#### Factual Basis

Subsection (h) requires the permittee to file with the local agency, within 30 days, a plan to implement the recommendations of the inspection report. This is required by Section 25288(b) of the Health and Safety Code [formerly Section 25283.4(b)]. In addition to the plan, a time schedule is required detailing when the recommendations will be implemented. The time schedule gives the local agency a tool to determine if the permittee is responding to the recommendations in a timely manner. The local agency can exempt any inspection recommendation if the permittee can show that failure to implement the recommendation will not result in an unauthorized release. This allows the permittee to question an inspection recommendation if he feels the recommendation is not necessary.

#### Comment

A commenter noted a typographical error in the labelling of Subsections (h) and (i). [113]

Response: The typographical error has been corrected.

#### Deleted Sections and Editorial Changes

Subsections (f), (h), and (i) were deleted in response to comments or duplication of the statute or unclear language.

Editorial changes were made in Subsections (a), (b), (c), (d), (e), (f), (g), and (h) for purposes of clarity.

#### Comment

Commenters believed that deleting Subsection (f) restricted the effective life of a provisional permit. [14b, 34, 53, 84, 87, 97, 102, 109, 113, 116, 119, 138, 140, 147]

Response: This comment is rejected. Subsection (f) was deleted because the statute did not provide any authority to establish a provisional permit. Therefore, the comments are moot.

#### Section 2713. Annual Report

##### Specific Purpose

The specific purpose of this section is to update the statewide data base by requiring local agencies to report any changes for the permits and report all unauthorized releases.

##### Factual Basis

Section 25286(c) of the Health and Safety Code [formerly Section 25233.2(a)] requires the permittee to complete the annual report and implies that this report be sent to the State Board.

Section 25299.1(a) of the Health and Safety Code [formerly Section 25283(a)] requires exempted local agencies to submit the annual report to the State Board which duplicates the provisions of this section which has the permittee submitting the information. As a result of several meetings with local agencies, it was decided that local agencies should collect the annual report information and submit it to the State Board. This eliminates duplicate reporting by the permittee to both local agencies and the State Board, since much of the information is required in the annual report the permittee is required to give the local agency (i.e., changes in the permit and unauthorized releases). This reporting procedure will also reinforce with the permittee that the local agency is implementing the regulatory program, not the State or Regional Boards.

#### Deleted or Editorial Change

Subsection (a) had an editorial addition to clarify the provision.

#### Section 2714. Trade Secret Provisions

#### Specific Purpose

The proposed regulations are intended to establish uniform procedures for the evaluation of requests for confidentiality of

information submitted as part of an application for a permit to operate an underground storage tank or for renewal of the permit. In addition, the proposed regulations develop procedures for treating confidential information to ensure that it will not be improperly disseminated.

#### Comments

1. A commenter rejected the State Board's authority to determine what is or is not a trade secret. [139]

Response: This comment is rejected. The State Board has received many clearly frivolous requests for trade secrets in the past. These subsections protect not only the person requesting trade secrecy status but also the State Board from frivolous requests.

2. A commenter suggested that the local agency make the determination as to what is a trade secret, with the State and Regional Board available for appeals. [168b]

Response: This comment is rejected. In some cases such as categorical variances, the State Board will be the first governmental agency to review an application and thereby should make the determination on the trade secrecy. Therefore, the proposed regulations are not changed and

trade secrecy status can be determined by any of the three agencies mentioned as appropriate.



# C. Fiscal Impact Statement as amended March 1, 1985

Updated  
Fiscal Impact Statement for  
Proposed Subchapter 16 Regulations  
Underground Tank Storage of Hazardous Substances

March 1, 1985

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## Article 1. General

The applicability of the proposed regulations to existing and new underground tanks used for the storage of hazardous substances is provided in Article 1. New underground storage tanks must be constructed with primary and secondary levels of containment with monitoring of the secondary container as specified in Article 3. Owners of existing underground storage tanks are required to monitor the tank and maintain appropriate records (Article 4), report unauthorized releases (Article 5), repair the tank as applicable (Article 6), and properly close the tank as required by the permit (Article 7).

Under specific situations, some underground tanks are exempt from these proposed regulations. Underground storage tanks that are used for certain agricultural purposes, or that operate under a hazardous waste facilities permit, or have been granted interim status by the Department of Health Services are exempt from these proposed regulations. Specific structures, such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps, and lagoons are also exempt from the proposed regulations.

As required by Section 25299.1(a) [formerly Section 25288(a)] of the Health and Safety Code, counties and cities that adopted an ordinance prior to January 1, 1984, which, at a minimum, meets the requirements set forth in Sections 25291 and 25292 [formerly Sections 25284 and 25284.1, respectively] of the Health and Safety Code are exempt from these regulations except for some administrative reporting requirements. Based on this exemption, for the twenty one (21) counties (Reference 1) which had adopted an ordinance prior to January 1, 1984, and using population figures to determine the distribution of underground storage tanks throughout the State (Reference 2), approximately sixty (60) percent of existing and new tanks would not be subject to these regulations. However, in developing the cost for each article, it was assumed that all underground storage tanks in the State will be subject to ordinances equivalent to these regulations.

Based on the number of underground storage tank registration forms received by the State Board under Chapter 1045 of the Statutes of 1983 (Assembly Bill 2013, Cortese, 1983) it is estimated that a total of 150,000 underground tanks are located in the State (Reference 3). The number of underground storage tanks owned by the State of California was developed by contacting the various State agencies that operate tanks (i.e., Department of Transportation, California Highway Patrol) (Reference 4). The number of underground storage tanks owned by



county and city governments and local school districts (including community college districts) was developed by <sup>-1</sup>contacting local government agencies (i.e., cities, counties) (Reference 5) and school districts (Reference 6) of varying size and determining the number of underground storage tanks as a function of population for cities and counties (Reference 1) and students for school districts (Reference 7) and community college districts (Reference 8). The unit values (underground storage tanks per person or student) were then prorated for the entire population (persons or students) in the State (Reference 2) to provide the total number of underground storage tanks. The results of this analysis are provided in Table 1.1.

Table 1.1 Number and Owner of Existing Underground Storage Tanks

| Owner of Existing Under-ground Storage Tank   | Private Industry | State Govern-ment | County Govern-ment | City Govern-ment | School Districts | Total Number of Underground Storage Tanks |
|---|------------------|-------------------|--------------------|------------------|------------------|---|
| Number of Existing Under-Ground Storage Tanks | 140,400          | 2,500             | 2,900              | 2,700            | 1,500            | 150,000                                   |

Article 2. Definition of Terms

Article 2 of the proposed regulations includes definitions only and, as such, specifically requires no additional cost to new or existing underground storage tanks.

### Article 3. New Tank Construction and Monitoring Standards

Article 3 of the proposed regulations provides minimum standards for the construction of new underground storage tanks and the associated monitoring systems. All new underground storage tanks must provide primary and secondary levels of containment for the hazardous substances stored in them.

The requirements for the secondary container differ depending on the type of hazardous substance stored in the primary container. For hazardous substances other than motor vehicle fuels, the secondary container has volumetric requirements and protects ground water by storing an unauthorized release during both the detection and cleanup and removal programs (Section 2631). An access casing(s) is required in the secondary container for leak detection monitoring and to provide a conduit for removal of the hazardous substance (Section 2632). The secondary container for motor vehicle fuel tanks has no volumetric requirements except that which is required to accommodate leak detection monitoring. The secondary container must direct the unauthorized release to the access casing for detection and removal (Sections 2633 and 2634). A response plan must be developed for the motor vehicle fuel tanks to ensure that any unauthorized release from the primary container will be cleaned up before reaching ground water if the secondary container is overtopped (Section 2634).

As presented in Section 2630, new underground storage tanks that only store motor vehicle fuels may be constructed and monitored pursuant to the standards specified in Sections 2631 and 2632, respectively, rather than those specified in Sections 2633 and 2634. Consequently, the methods for primary and secondary containment with continuous or manual monitoring systems (including double-walled tanks) used for storage of hazardous substances pursuant to Sections 2631 and 2632 may be used for the storage of motor vehicle fuels.

The estimated additional costs imposed by the regulations for the construction of new underground storage tanks <sup>are</sup> was based on the assumption that the construction and monitoring standards specified in Sections 2631 and 2632, respectively, would be applied to all new underground tank construction. Although, the primary and secondary container construction standards specified in Sections 2633 and 2634 may result in a less expensive construction cost for the motor vehicle fuel tank, the additional expense for development of the response plan was assumed to make the alternatives essentially equal.

In order to estimate the unit construction and monitoring costs for new tanks, an average number of underground storage tanks per facility and an average tank size was developed. The following assumptions were used:

- (1) Ninety (90) percent of all underground tanks are used for the storage of motor vehicle fuels.
- (2) The average motor vehicle fuel tank has a capacity of 10,000 gallons.
- (3) Three (3) motor vehicle fuel tanks are installed at each motor vehicle fuel facility.
- (4) Ten (10) percent of all underground tanks are used for the storage of hazardous substances other than motor vehicle fuels.
- (5) The average tank storing other hazardous substances has a capacity of 6,000 gallons.
- (6) Two (2) underground tanks are installed at facilities storing a hazardous substance other than motor vehicle fuels.

Based on these assumptions, the average tank volume was found to be 9,600 gallons with a weighted average of 2.9 tanks per facility.

The estimated unit costs for the installation of new underground storage tanks as required by the proposed regulations was compared to that used in present practice. The costs considered in the analysis included the purchase price and installation of the underground storage tank (Reference 9, 10, 11, 12, 13), a secondary container (for single-walled tanks only) (Reference 14), monitoring costs (Reference 15, 16), and performance of a National Fire Protection Association (NFPA) 329 precision tank test (Reference 17, 18). The cost estimate was developed for single-walled steel and fiberglass tanks with volumes of 6,000 gallons and 10,000 gallons and double-walled steel and fiberglass tanks with a volume of 10,000 gallons.

A summary of initial and annual monitoring costs is given in Table 3.1. Using the weighted averages for tank size and number of tanks per facility provided above, it was estimated that the average price for installation of a new underground storage tank under the proposed regulations would increase by \$6830. The results of this analysis are provided in Table 3.2.

TABLE 3.2 ESTIMATED INITIAL COSTS FOR NEW UNDERGROUND STORAGE TANKS

| UNDERGROUND STORAGE TANK FACILITY COMPONENT                    | UNIT COST (dollars)                         | ESTIMATED COST OF INSTALLING UNDERGROUND STORAGE TANKS PER 1971 REGULATIONS (dollars) |                               |                                     |                                | ESTIMATED COST OF INSTALLING STORAGE TANKS UNDER PROPOSED REGULATIONS (dollars) |                               |                                     |                                |   |  |
|--|---|---|-------------------------------|-------------------------------------|--------------------------------|---|-------------------------------|-------------------------------------|--------------------------------|---|--|
|  |   | SINGLE FIBERGLASS TANK (6,000 gal)  | DOUBLE STEEL TANK (6,000 gal) | THREE FIBERGLASS TANKS (10,000 gal) | THREE STEEL TANKS (10,000 gal) | SINGLE FIBERGLASS TANK (6,000 gal)  | SINGLE STEEL TANK (6,000 gal) | THREE FIBERGLASS TANKS (10,000 gal) | THREE STEEL TANKS (10,000 gal) | THREE DOUBLE-WALLED FIBERGLASS TANKS (10,000 gal) | THREE DOUBLE-WALLED STEEL TANKS (10,000 gal) |
| <b>Underground Storage Tank</b>                                |   |   |                               |                                     |                                |   |                               |                                     |                                |   |  |
| Single Steel-Walled (6,000 gal)                                | 3,800                                       |   | 3,800                         |                                     |                                |   | 3,800                         |                                     |                                |   |  |
| Steel-Walled (10,000 gal)                                      | 5,000                                       |   |                               |                                     | 15,000                         |   |                               |                                     | 15,000                         |   |  |
| Fiberglass (6,000 gal)   | 4,000                                       | 4,000   |                               |                                     |                                | 4,000   |                               |                                     |                                |   |  |
| Fiberglass (10,000 gal)  | 5,500                                       |   |                               | 16,500                              |                                |   |                               | 16,500                              |                                |   |  |
| Double Steel-Walled (10,000)                                   | 10,800                                      |   |                               |                                     |                                |   |                               |                                     |                                |   | 32,400                                       |
| Fiberglass (10,000 gal)  | 11,500                                      |   |                               |                                     |                                |   |                               |                                     |                                | 34,500  |  |
| <b>Installation (1)</b>  |   |   |                               |                                     |                                |   |                               |                                     |                                |   |  |
| Single Steel-Walled (6,000 gal)                                | 8,500                                       |   | 8,500                         |                                     |                                |   | 8,500                         |                                     |                                |   |  |
| Steel-Walled (10,000 gal)                                      | 10,500 <sup>(1)</sup> 13,000 <sup>(3)</sup> |   |                               |                                     | 13,000                         |   |                               |                                     | 13,000                         |   |  |
| Fiberglass (6,000 gal)   | 10,500                                      | 10,500  |                               |                                     |                                |   |                               |                                     |                                |   |  |
| Fiberglass (10,000 gal)  | 12,500 <sup>(1)</sup> 15,000 <sup>(3)</sup> |   |                               | 15,000                              |                                |   |                               | 15,000                              |                                |   |  |
| Double Steel-Walled (10,000 gal)                               | 11,500 <sup>(1)</sup> 16,000 <sup>(3)</sup> |   |                               |                                     |                                |   |                               |                                     |                                |   | 16,000                                       |
| Fiberglass (10,000 gal)  | 13,500 <sup>(1)</sup> 18,000 <sup>(3)</sup> |   |                               |                                     |                                |   |                               |                                     |                                | 18,000  |  |
| <b>Secondary Container System (2)</b>                          |   |   |                               |                                     |                                |   |                               |                                     |                                |   |  |
| Single Tank (including installation of secondary liner)        | 8,000                                       |   |                               |                                     |                                | 8,000   | 8,000                         |                                     |                                |   |  |
| Three-Tank Cluster (including installation of secondary liner) | 15,200                                      |   |                               |                                     |                                |   |                               | 15,200                              | 15,200                         |   |  |
| <b>Cost of Precision Test as NFPA 329</b>                      |   |   |                               |                                     |                                |   |                               |                                     |                                |   |  |
| Single Tank  | 400   | 400   | 400                           |                                     |                                | 400   | 400                           |                                     |                                |   |  |
| Three Tanks  | 1,200                                       |   |                               | 1,200                               | 1,200                          |   |                               | 1,200                               | 1,200                          | 1,200   | 1,200  |
| <b>Estimated Cost for Complete Installation (dollars)</b>      |   | 14,900  | 12,700                        | 32,700                              | 29,200                         | 22,900  | 20,700                        | 47,900                              | 44,400                         | 53,700  | 49,600                                       |
| <b>Average Per Tank Cost For Installation (dollars)</b>        |   | 14,900  | 12,700                        | 10,900                              | 9,700                          | 22,900  | 20,700                        | 16,000                              | 14,800                         | 17,900  | 16,500                                       |
| Weighted Average Cost Per Tank (dollars)                       |   |   |                               |                                     |                                | 10,650 old  | 16,850 new                    |                                     |                                |   |  |
| Initial Monitoring Cost Per Tank (dollars) (3)                 |   |   |                               |                                     |                                |   | 630                           |                                     |                                |   |  |
| Total Cost Per New Tank (dollars)                              |   |   |                               |                                     |                                |   | 17,480                        |                                     |                                |   |  |
| Average Per Tank Increase (dollars)                            |   |   |                               |                                     |                                |   | 6,630                         |                                     |                                |   |  |

(1) Includes cost of installing associated piping.

(2) Although Section 2633(f) specifies that pressured piping systems for motor vehicle fuel tanks, that include an automatic, continuously operating pressure loss detector and flow restriction device are exempt from the secondary container requirements for the piping, the cost for a secondary container of the piping was included rather than the cost for a flow restriction device and pressure loss detector.

(3) From Table 3.1



#### Article 4. Existing Underground Storage Tank Monitoring Criteria

Article 4 of the proposed regulations establishes statewide standards for leak detection monitoring of underground storage tanks containing hazardous substances. The objective of the monitoring program is to determine if unauthorized releases are occurring and to provide existing tanks with a monitoring system that will give early warning of future unauthorized releases before affecting the quality of ground water. To achieve these monitoring objectives, one or more monitoring methods must be used. These methods include visual monitoring, tank testing, tank gauging, inventory reconciliation, pipeline leak detectors, soil testing, vadose zone monitoring, and ground water monitoring.

Any underground storage tank that can be visually monitored in its entirety requires none of the additional monitoring described in the monitoring alternatives presented below. If only a part of the tank can be visually monitored, then visual monitoring of the exposed portion of the tank is required, and the concealed portion must be monitored in accordance with monitoring for a completely concealed tank.

The following monitoring alternatives are presented in the regulations for monitoring partially or completely concealed tanks. Any of the monitoring alternatives may be implemented at any facility which meets the conditions specified for that alternative. Final approval of monitoring plans rests with the local agency.

The eight monitoring alternatives are described in Section 2641 of Article 4, and are briefly outlined below:

Alternative 1

This alternative requires monthly tank testing for every tank, as specified in Section 2643, and may be implemented at any facility.

Alternative 2

This alternative requires daily or continuous vadose zone monitoring, as specified in Section 2646; semi-annual ground water monitoring, as specified in Section 2647; and initial soils testing, as specified in Section 2645. It may be implemented at facilities where ground-water is normally less than 100 feet deep.

Alternative 3

This alternative requires daily or weekly vadose zone monitoring, as specified in Section 2646; annual tank testing, as specified in Section 2643; and initial soils testing, as specified in

Section 2645. It may be implemented at facilities where the first ground water is greater than 100 feet deep and either has actual or potential beneficial uses or is hydraulically connected to ground water which has actual or potential beneficial uses.

#### Alternative 4

This alternative requires monthly ground water monitoring, as specified in Section 2647, and initial soils testing, as specified in Section 2645. It may be implemented at facilities where perennial ground water is normally less than 30 feet deep and has no actual or potential beneficial uses nor is hydraulically connected with ground water with actual or potential beneficial uses.

#### Alternative 5

This alternative requires daily inventory reconciliation, as specified in Section 2644; annual tank testing, as specified in Section 2643; and continuous pipeline leak detectors. It may be implemented at facilities storing motor vehicle fuels.

#### Alternative 6

This alternative requires daily inventory reconciliation, as specified in Section 2644; annual tank testing, as specified in Section 2643; continuous pipeline leak detection; initial soils testing, as specified in Section 2645; and either ground water or

vadose zone monitoring at least semi-annually, as specified in Sections 2647 and 2646 respectively. It may be implemented at facilities storing motor vehicle fuels.

#### Alternative 7

This alternative requires weekly tank gauging, as specified in Section 2644, and annual tank testing, as specified in Section 2643. It may be used at facilities with small tanks that normally do not have any inputs or withdrawals where the liquid level in the tank can be accurately measured within 5 gallons.

#### Alternative 8

This alternative requires annual tank testing, as specified in Section 2643, and either daily inventory reconciliation or daily or weekly tank gauging, as specified in Section 2644. Tank gauging is limited to small tanks with few inputs and withdrawals. This is an interim alternative which may be used for up to three years by small businesses, small non-profit organizations or governmental agencies in preparation for implementing another monitoring alternative, by governmental agencies planning to replace their underground storage tanks, or by any underground storage tank owner who will properly close his tank(s) within the three year period.

Estimated costs were developed for each of the above alternatives for facilities with one, two, three, four, and nine underground storage tanks (cases 1, 2, 3, 4, and 5 respectively). These

TABLE 4.1

## CASE #1 - MONITORING COST ESTIMATES FOR FACILITIES WITH ONE TANK (DOLLARS)

| MONITORING METHOD  | VISUAL<br>Initial/<br>Annual | Alt 1<br>Initial/<br>Annual | Alt 2A<br>Initial/<br>Annual | Alt 2B<br>Initial/<br>Annual | Alt 3<br>Initial/<br>Annual | Alt 4<br>Initial/<br>Annual | Alt 5<br>Initial/<br>Annual | Alt 6<br>Initial/<br>Annual | Alt 7<br>Initial/<br>Annual | Alt 8<br>Initial/<br>Annual |
|--|------------------------------|-----------------------------|------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Visual Monitoring <sup>1/</sup>  | 0/910                        |                             |                              |                              |                             |                             |                             |                             |                             |                             |
| Tank Testing <sup>2/</sup>   |                              | 0/4800                      |                              |                              | 0/400                       |                             | 0/400                       | 0/400                       | 0/400                       | 0/400                       |
| Tank Gauging <sup>3/</sup>   |                              |                             |                              |                              |                             |                             |                             |                             | 0/70                        | 0/(40)                      |
| Inventory Reconciliation <sup>4/</sup>                                     |                              |                             |                              |                              |                             |                             | 0/630                       | 0/630                       |                             | 0/(630)                     |
| Pipeline Leak Detection <sup>5/</sup>                                      |                              |                             |                              |                              |                             |                             | 130/0                       | 130/0                       |                             |                             |
| Soils Testing <sup>6/</sup>  |                              |                             | 2290/0                       | 2650/0                       | 1860/0                      | 1030/0                      | 1680/0                      |                             |                             |                             |
| Vadose Zone Monitoring <sup>7/</sup>                                       |                              |                             | 3570/2330                    | 3550/2330                    | 3600/2330                   |                             |                             | (3920)/(350)                |                             |                             |
| Ground Water Monitoring <sup>8/</sup>                                      |                              |                             | 3150/210                     | 4030/210                     | 1030*/0                     | 3770/1280                   |                             | (3340)/(230)                |                             |                             |
| TOTAL COST   | 0/910                        | 0/4800                      | 9010/2540                    | 10230/2540                   | 6490/2730                   | 4800/1280                   | 130/600                     | 5440/1320 <sup>10/</sup>    | 0/470                       | 0/740 <sup>11/</sup>        |
| Percentage of Facilities Implementing Each Alternative <sup>9/</sup>       | 2%                           | 1%                          | 8%                           | 2%                           | 2%                          | 1%                          | 34%                         | 10%                         | 30%                         | 10%                         |
| AVERAGE MONITORING COST PER TANK FOR CASE #1: \$1690 initial, \$940 annual |                              |                             |                              |                              |                             |                             |                             |                             |                             |                             |

FOOTNOTES: <sup>1/</sup> through <sup>11/</sup> refer to Footnotes 1 through 11 on Pages 21 through 30.

\* Exploratory Boring

TABLE 4.2

## Case #2 - MONITORING COST ESTIMATES FOR FACILITIES WITH TWO TANKS (DOLLARS)

| MONITORING METHOD   | VISUAL<br>Initial/<br>Annual | Alt 1<br>Initial/<br>Annual | Alt 2A<br>Initial/<br>Annual | Alt 2B<br>Initial/<br>Annual | Alt 3<br>Initial/<br>Annual | Alt 4<br>Initial/<br>Annual | Alt 5<br>Initial/<br>Annual | Alt 6<br>Initial/<br>Annual | Alt 7<br>Initial/<br>Annual | Alt 8<br>Initial/<br>Annual |
|---|------------------------------|-----------------------------|------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Visual Monitoring <sup>1/</sup>   | 0/1820                       |                             |                              |                              |                             |                             |                             |                             |                             |                             |
| Tank Testing <sup>2/</sup>  |                              | 0/9600                      |                              |                              | 0/800                       |                             | 0/800                       | 0/800                       | 0/800                       | 0/800                       |
| Tank Gauging <sup>3/</sup>  |                              |                             |                              |                              |                             |                             |                             |                             | 0/180                       | 0/(80)                      |
| Inventory Reconciliation <sup>4/</sup>                                      |                              |                             |                              |                              |                             |                             | 0/1250                      | 0/1250                      |                             | 0/(1250)                    |
| Pipeline Leak Detection <sup>5/</sup>                                       |                              |                             |                              |                              |                             |                             | 260/0                       | 260/0                       |                             |                             |
| Soils Testing <sup>6/</sup>   |                              |                             | 2470/0                       | 4470/0                       | 1870/0                      | 1020/0                      |                             | 2020/0                      |                             |                             |
| Vadose Zone Monitoring <sup>7/</sup>  |                              |                             | 7590/2790                    | 7655/2790                    | 7440/2790                   |                             |                             | 7540/350                    |                             |                             |
| Ground Water Monitoring <sup>8/</sup>                                       |                              |                             | 4360/260                     | 5755/260                     | 930*/0                      | 4490/1550                   |                             | 4640/290                    |                             |                             |
| TOTAL COST  | 0/1820                       | 0/9600                      | 14420/3050                   | 17870/3050                   | 10990/3590                  | 5510/1580                   | 260/2050                    | 8870/2400 <sup>10/</sup>    | 0/930                       | 0/1470 <sup>11/</sup>       |
| Percentage of Facilities Implementing Each Alternative <sup>9/</sup>        | 2%                           | 1%                          | 10%                          | 4%                           | 2%                          | 1%                          | 40%                         | 20%                         | 0%                          | 20%                         |
| AVERAGE MONITORING COST PER TANK FOR CASE #2: \$2100 initial, \$1120 annual |                              |                             |                              |                              |                             |                             |                             |                             |                             |                             |

FOOTNOTES: <sup>1/</sup> through <sup>11/</sup> refer to Footnotes 1 through 11 on Pages 21 through 30.  
 \*Exploratory Well

TABLE 4.3

## Case #3 - MONITORING COST ESTIMATES FOR FACILITIES WITH THREE TANKS (DOLLARS)

| MONITORING METHOD   | VISUAL<br>Initial/<br>Annual | Alt 1<br>Initial/<br>Annual | Alt 2A<br>Initial/<br>Annual | Alt 2B<br>Initial/<br>Annual | Alt 3<br>Initial/<br>Annual | Alt 4<br>Initial/<br>Annual | Alt 5<br>Initial/<br>Annual | Alt 6<br>Initial/<br>Annual | Alt 7<br>Initial/<br>Annual | Alt 8<br>Initial/<br>Annual |
|---|------------------------------|-----------------------------|------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Visual Monitoring <sup>1/</sup>   | 0/2370                       |                             |                              |                              |                             |                             |                             |                             |                             |                             |
| Tank Testing <sup>2/</sup>  |                              | 0/14400                     |                              |                              | 0/1200                      |                             | 0/1200                      | 0/1200                      | 0/1200                      | 0/1200                      |
| Tank Gauging <sup>3/</sup>  |                              |                             |                              |                              |                             |                             |                             |                             | 0/1880                      | 0/(120)                     |
| Inventory Reconciliation <sup>4/</sup>                                      |                              |                             |                              |                              |                             |                             | 0/1880                      | 0/1880                      |                             | 0/(1880)                    |
| Pipeline Leak Detection <sup>5/</sup>                                       |                              |                             |                              |                              |                             |                             | 380/0                       | 380/0                       |                             |                             |
| Soils Testing <sup>6/</sup>   |                              |                             | 4220/0                       | 5270/0                       | 2910/0                      | 1470/0                      |                             | 3270/0                      |                             |                             |
| Vadose Zone Monitoring <sup>7/</sup>  |                              |                             | 10820/3240                   | 10560/3240                   | 10780/3240                  |                             |                             | (10830)/(470)               |                             |                             |
| Ground Water Monitoring <sup>8/</sup>                                       |                              |                             | 4540/280                     | 6270/280                     | 860*/0                      | 4940/1660                   |                             | (4890)/(310)                |                             |                             |
| TOTAL COST  | 0/2730                       | 0/14400                     | 19580/3520                   | 22100/3520                   | 14550/4440                  | 6410/1660                   | 380/3080                    | 11510/3470 <sup>10/</sup>   | 0/3080                      | 0/2200 <sup>11/</sup>       |
| Percentage of Facilities Implementing Each Alternative <sup>9/</sup>        | 2%                           | 1%                          | 10%                          | 4%                           | 2%                          | 1%                          | 40%                         | 20%                         | 0%                          | 20%                         |
| AVERAGE MONITORING COST PER TANK FOR CASE #3: \$1880 initial, \$1050 annual |                              |                             |                              |                              |                             |                             |                             |                             |                             |                             |

FOOTNOTES: <sup>1/</sup> through <sup>11/</sup> refer to Footnotes 1 through 11 on Pages 21 through 30.  
 \*Exploratory Well

TABLE 4.4

Case #4 - MONITORING COST ESTIAMTES FOR FACILITIES WITH FOUR TANKS (DOLLARS)

| MONITORING METHOD   | VISUAL<br>Initial/<br>Annual | Alt 1<br>Initial/<br>Annual | Alt 2A<br>Initial/<br>Annual | Alt 2B<br>Initial/<br>Annual | Alt 3<br>Initial/<br>Annual | Alt 4<br>Initial/<br>Annual | Alt 5<br>Initial/<br>Annual | Alt 6<br>Initial/<br>Annual | Alt 7<br>Initial/<br>Annual | Alt 8<br>Initial/<br>Annual |
|---|------------------------------|-----------------------------|------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Visual Monitoring <sup>1/</sup>   | 0/3640                       |                             |                              |                              |                             |                             |                             |                             |                             |                             |
| Tank Testing <sup>2/</sup>  |                              | 0/19200                     |                              |                              | 0/1600                      |                             | 0/1600                      | 0/1600                      | 0/1600                      | 0/1600                      |
| Tank Gauging <sup>3/</sup>  |                              |                             |                              |                              |                             |                             |                             |                             | 0/280                       | 0/(160)                     |
| Inventory Reconciliation <sup>4/</sup>                                      |                              |                             |                              |                              |                             |                             | 0/2520                      | 0/2520                      |                             | 0/(2520)                    |
| Pipeline Leak Detection <sup>5/</sup>                                       |                              |                             |                              |                              |                             |                             | 520/0                       | 520/0                       |                             |                             |
| Soils Testing <sup>6/</sup>   |                              |                             | 5170/0                       | 5670/0                       | 3320/0                      | 1490/0                      |                             | 3910/0                      |                             |                             |
| Vadose Zone Monitoring <sup>7/</sup>  |                              |                             | 12470/3680                   | 12440/3680                   | 12860/3680                  |                             |                             | (12770)/(530)               |                             |                             |
| Ground Water Monitoring <sup>8/</sup>                                       |                              |                             | 5580/230                     | 6210/280                     | 840*/0                      | 5990/1920                   |                             | (5710)/(340)                |                             |                             |
| TOTAL COST  | 0/3640                       | 0/19200                     | 23220/4000                   | 24320/3960                   | 17020/5280                  | 7490/1920                   | 520/4120                    | 13670/4560 <sup>10/</sup>   | 0/1880                      | 0/2940 <sup>11/</sup>       |
| Percentage of Facilities Implementing Each Alternative <sup>9/</sup>        | 2%                           | 1%                          | 10%                          | 4%                           | 2%                          | 1%                          | 40%                         | 20%                         | 0%                          | 20%                         |
| AVERAGE MONITORING COST PER TANK FOR CASE #4: \$1660 initial, \$1030 annual |                              |                             |                              |                              |                             |                             |                             |                             |                             |                             |

FOOTNOTES: <sup>1/</sup> through <sup>11/</sup> refer to Footnotes 1 through 11 on Pages 21 through 30.  
 \*Exploratory Well



TABLE 4.5

Case #5 - MONITORING COST ESTIMATES FOR FACILITIES WITH NINE TANKS (DOLLARS)

| MONITORING METHOD  | VISUAL<br>Initial/<br>Annual | Alt 1<br>Initial/<br>Annual | Alt 2A<br>Initial/<br>Annual | Alt 2B<br>Initial/<br>Annual | Alt 3<br>Initial/<br>Annual | Alt 4<br>Initial/<br>Annual | Alt 5<br>Initial/<br>Annual | Alt 6<br>Initial/<br>Annual | Alt 7<br>Initial/<br>Annual | Alt 8<br>Initial/<br>Annual |
|--|------------------------------|-----------------------------|------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Visual Monitoring <sup>1/</sup>  | 0/8190                       |                             |                              |                              |                             |                             |                             |                             |                             |                             |
| Tank Testing <sup>2/</sup>   |                              | 0/43200                     |                              |                              | 0/3600                      |                             | 0/3600                      | 0/3600                      | 0/3600                      | 0/3600                      |
| Tank Gauging <sup>3/</sup>   |                              |                             |                              |                              |                             |                             |                             |                             | 0/630                       | 0/(360)                     |
| Inventory Reconciliation <sup>4/</sup>                                     |                              |                             |                              |                              |                             |                             | 0/5670                      | 0/5670                      |                             | 0/(5670)                    |
| Pipeline Leak Detection <sup>5/</sup>                                      |                              |                             |                              |                              |                             |                             | 1170/0                      | 1170/0                      |                             |                             |
| Soils Testing <sup>6/</sup>  |                              |                             | 9780/0                       | 8830/0                       | 6480/0                      | 2230/0                      |                             | 7610/0                      |                             |                             |
| Vadose Zone Monitoring <sup>7/</sup>                                       |                              |                             | 24880/5910                   | 25020/5910                   | 25650/5910                  |                             |                             | (25260)/(830)               |                             |                             |
| Ground Water Monitoring <sup>8/</sup>                                      |                              |                             | 10040/410                    | 6090/280                     | 790*/0                      | 7900/2460                   |                             | (9210)/(430)                |                             |                             |
| TOTAL COST   | 0/8190                       | 0/43200                     | 44700/6320                   | 39940/6190                   | 32920/9510                  | 10130/2460                  | 1170/9270                   | 26010/9900 <sup>10/</sup>   | 0/4230                      | 0/6620 <sup>11/</sup>       |
| Percentage of Facilities Implementing Each Alternative <sup>9/</sup>       | 2%                           | 1%                          | 10%                          | 4%                           | 2%                          | 1%                          | 40%                         | 20%                         | 0%                          | 20%                         |
| AVERAGE MONITORING COST PER TANK FOR CASE #5: \$1390 initial, \$970 annual |                              |                             |                              |                              |                             |                             |                             |                             |                             |                             |

FOOTNOTES: <sup>1/</sup> through <sup>11/</sup> refer to Footnotes 1 through 11 on Pages 21 through 30.  
 \*Exploratory Well

cases were chosen to best represent the distribution of tanks at facilities in California. Cost estimates for each case are provided in Tables 4.1 thru 4.5 with an explanation of their development provided in the accompanying footnotes.

#### Footnotes to Tables 4.1 through 4.5

##### Visual Monitoring

- (1) Costs for this monitoring method were based on the assumption that visual monitoring of an underground storage tank will take approximately five (5) minutes per day and the individual performing the inspection earns \$30.00 per hour (Reference 16). Yearly cost estimates for visual monitoring are based on 365 inspections per year.

##### Tank Testing

- (2) Costs for this monitoring method were based on a range of prices from companies performing tank testing which satisfies the requirements of the Precision Test (National Fire Protection Association [NFPA]329) as defined in Section 2643(b) of the regulations (Reference 17).

##### Tank Gauging

- (3) Costs for this monitoring method were based on the following assumptions:

- (a) Tank gauging will take approximately five minutes per tank, and will be performed by an individual earning \$30.00 per hour;
- (b) One half of all persons implementing a monitoring alternative requiring tank gauging have previously used this monitoring method and in these cases no additional costs are incurred; and
- (c) "Daily" tank gauging means five (5) days per week and excludes ten (10) holiday days per year.

#### Inventory Reconciliation

(4) Costs for this monitoring method were based on the following assumptions:

- (a) Manual inventory control practices currently being used will be adequate to attain the accuracies required in alternatives 5, 6, and 8 (Reference 19);
- (b) Persons implementing alternatives requiring inventory reconciliation have previously used some inventory monitoring method, and complying with the requirements of Section 2644 will take an additional five (5) minutes per tank and will be performed by an individual earning \$30.00 per hour; and
- (c) "Daily" inventory reconciliation means five (5) days per week and excludes ten (10) holiday days per year.

### Pipeline Leak Detection

(5) Costs for this monitoring method were based on equipment and installation costs for a common brand of pipeline leak detector (Reference 13) and assuming that half of all persons implementing alternatives requiring pipeline leak detectors already have such detectors installed, and that half of the facilities where pipeline leak detectors will be installed have pumps compatible with the detector to be installed.

### Soils Testing

(6) Costs for this monitoring method were based on the following assumptions:

- (a) Undisturbed soil samples are taken at five (5) intervals in each hole drilled at each facility;
- (b) Twenty (20) percent of the total drilling and personnel time for each site is spent retrieving soil samples (Reference 20);
- (c) One half of all soil samples taken at the same depth at each facility can be combined for analysis without loss of constituents,
- (d) All samples will be analysed by a laboratory and transportation of the samples to the lab involves negligible costs,
- (e) A hydrocarbon screen test [approximately \$50.00 per sample (Reference 22)] will be adequate to analyze samples from facilities storing motor vehicle fuels

(Reference 21) and soil samples for non-motor vehicle fuel tanks will be analyzed by more expensive methods at an average cost of \$150.00 per sample (Reference 22).

Approximately 88 percent of the underground tanks are used to store motor vehicle fuel and the remaining 12 percent for other hazardous substances (Reference 21).

#### Vadoze Zone Monitoring

(7) Costs for this monitoring method were based on the following assumptions:

- (a) Vapor monitoring and pore moisture monitoring will be the most common types of vadose zone monitoring with one half of those implementing alternatives requiring vadose zone monitoring using a vapor monitoring system and the remainder using a pore liquid system,
- (b) One half of those implementing vapor vadose zone monitoring will use a system of vertical vapor collection wells drilled to depths of 15 feet around the tank which lead to a central vapor sampling and analysis station (vapor system 1) (Reference 23); the number of wells used for cost analyses for each case for this system is given in Table 4.6 below.

TABLE 4.6. NUMBER OF VADOSE ZONE MONITORING WELLS  
FOR VARIOUS CASES

| VADOSE ZONE<br>MONITORING METHOD | CASE<br>1 | CASE<br>2 | CASE<br>3 | CASE<br>4 | CASE<br>5 |
|----------------------------------|-----------|-----------|-----------|-----------|-----------|
| Vapor System 1                   | 3         | 6         | 12        | 12        | 24        |
| Vapor System 2                   | 2         | 3         | 4         | 5         | 10        |
| Pore Moisture                    | 4         | 9         | 14        | 18        | 40        |

- (c) The remainder of those implementing vapor monitoring (one half) will use a system requiring slant drilled wells, 15 feet deep, with a gas analyzing device at the bottom of each well (vapor system 2) (Reference 24). The number of wells used for cost analyses for each case is given in Table 4.6.
- (d) Persons implementing pore moisture vadose zone monitoring will use a system requiring one slant drilled, 15 foot deep, well for every five foot length of tank, approximately 4.5 wells per tank (Reference 25). The number of wells used for pore moisture systems cost analyses for each case is given in Table 4.6. Pore liquid samples are assumed to be collected continuously and analyzed weekly (Reference 25). One sample is taken for each tank. It was assumed that 95 percent of pore liquid samples are analyzed on-site; half by on-site personnel with portable analysis equipment purchased by

- the facility owner, and half by a laboratory technician who comes to the site with his own equipment for analysis (Reference 26). The remaining five percent of pore liquid samples are assumed to be collected by laboratory personnel who come on-site and analyzed in the lab at an average cost of \$150.00 per sample (Reference 22). It is assumed to take ten minutes to retrieve each pore liquid sample (Reference 25), ten minutes to do an on-site analysis (Reference 26), and an average of three hours (total) to travel between the facility and the lab. All of the above work is assumed to be done by an individual earning \$30.00 per hour;
- (e) Surface seals are assumed to be required for vadose zone wells at one half of the facilities.

#### Ground Water Monitoring

- (8) Costs for this monitoring method were based on data provided by a local drilling contractor (Reference 20), and on the following assumptions:
- (a) All drilling at one facility will be done by one hollow stem auger drill at a drilling cost (drill plus personnel) of \$100.00 per hour, and an average mobilization and demobilization cost of \$600.00 per site;
- (b) For one half of the sites, the drill and crew will come from out of town and be on a per diem of \$80.00 per day;

- (c) The drilling crew can complete 90 feet of hole per day while taking soil samples every five feet,
- (d) Slant drilling costs are approximately 1.5 times as much as vertical drilling costs;
- (e) Ground water monitoring wells will take one hour to develop on average,
- (f) Casing material, annular fill material, and grout cement all cost \$3.00 per foot of well on average,
- (g) Well covers cost \$150.00 per cover on average  
(Reference 21).

The depth of ground water wells for each alternative requiring ground water monitoring was calculated as the average of the deepest and the shallowest wells required. Alternative #2 was divided into alternatives 2A and 2B to accommodate the differing requirements for sites with groundwater less than fifty feet deep (2A) and sites with groundwater greater than fifty feet deep (2B). The averaged depths used are 45 feet for alternative #2A; 80 feet for alternative #2B; and 40 feet for alternative #4. It was also assumed that an exploratory boring would be drilled in one half of the cases where the depth to groundwater must be determined, therefore one half the additional expense for a 100 foot exploratory boring are included for alternatives #2A, 2B, 3, and 6 (where ground water monitoring is used). Ground water sampling and analysis costs were based on the following



assumptions: (1) retrieving water samples from ground water monitoring wells takes 20 minutes on average; (and) water samples from 95 percent of all facilities can be analysed on-site with a portable analyzer (Reference 26). One half of these on-site analyses will be done by on-site personnel, and the remainder will be done by a laboratory technician who comes to the facility with his own equipment. Performing an on-site analysis is estimated to take 10 minutes per sample (Reference 26). The remaining 5 percent of ground water samples will be retrieved by a laboratory technician and analyzed at a lab at an average cost of \$150.00 per sample (Reference 22). The total travel time between the facility and laboratory is estimated to be three hours, and both on-site personnel and the laboratory technician are assumed to earn \$30.00 per hour.

#### Percentage of People Implementing Each Alternative

(9) These estimates were based on the costs of, and the restrictions on, implementing each alternative. For percentages of facilities implementing the alternatives based on depth to ground water an overall use estimate was made and individual alternative estimates were weighted as follows. Average depths to groundwater and associated land areas were determined for each County in the State, and a weighted average was developed based on the populations of each county relative to the State. It was estimated that groundwater is

shallower than 50 feet at 72 percent of the facilities, is between 50 and 100 feet deep at 18 percent of the facilities, and is deeper than 100 feet at 10 percent of the facilities (References 27, 28, 29, 30, 31). Groundwater was estimated to be perennially shallower than 30 feet, and to have no actual or beneficial use, at 2 percent of the facilities where it is less than 50 feet deep. Alternative #7 was assumed to be implemented only at facilities with a single tank, because it is restricted to small tanks which are infrequently used.

#### Alternative 6

(10) These estimates were based on the assumption that one half of the persons implementing Alternative 6 will use ground water monitoring and the remainder will use vadose zone monitoring. Ground water monitoring cost estimates are based on a weighted average of Alternatives 2A, 2B, and 4 using the percentages given in footnote (9). Ground water monitoring frequency was assumed to be the same as that for the other alternatives (monthly for Alternative 4 and semi-annually for Alternative 2). Vadose zone monitoring frequency was assumed to be continuous for vapor monitoring systems, monthly for half of the pore monitoring systems, and semi-annually for the remainder of the pore monitoring systems.

### Alternative 8

(11) These estimates were based on the assumption that one half of the persons implementing Alternative 8 will use tank gauging and the remainder will use inventory reconciliation.

The total initial and annual costs for implementing the regulations are presented in Table 4.7. These costs are based on the assumption that 150,000 tanks will be covered by the requirements of Article 4. The number of tanks falling into each case was based on an analysis of 56,000 tanks registered in the State of California prior to January 17, 1985 (Reference 21).

### Response to Comments

Cost estimates for Alternatives 1 through 8 of the December 28, 1984 draft of the proposed regulations cannot be directly compared with those for Alternatives 1 through 5 of the August 23, 1984 draft because the requirements for each alternative have been changed. These changes were made in response to public comments in order to provide more cost-effective monitoring alternatives and to provide options in the types of monitoring to be implemented at each facility. Many of the persons commenting on the August 23, 1984 fiscal impact statement felt that the costs for implementing the various alternatives in those regulations were under-estimated. The new initial cost estimates for situations similar to those in Alternatives 2 and 3 of the August 23, 1984 draft are higher than originally estimated as shown in Table 4.8.

### (OAL 136)

A commenter felt that the drilling costs used in the original fiscal impact statement were out of line with driller's current fee schedules [158]. As discussed above, modifications were made to the final cost estimates in response to the comments received.

TABLE 4.8. COMPARISON OF COST ESTIMATES FOR SIMILAR  
MONITORING ALTERNATIVES

| Estimated<br>Cost<br>(Dollars) | Old<br>Alternative<br>#2 | New<br>Alternative#2A<br>Case 2 | Old<br>Alternative<br>#3 | New<br>Alternative#2B<br>Case 2 |
|--------------------------------|--------------------------|---------------------------------|--------------------------|---------------------------------|
| Initial                        | 7,700                    | 14,420                          | 14,700                   | 17,870                          |
| Annual                         | 6,160                    | 3,050                           | 3,500                    | 3,050                           |

Annual costs are roughly equivalent to the earlier estimates. The difference in annual costs for the old Alternative 2 and the new Alternative 2A (case 2) reflects more frequent monitoring requirements for the former.

The new overall cost estimates for statewide implementation of existing tank monitoring are lower than those for the previous draft because of the variety of monitoring alternatives in the regulations as adopted.

#### Article 5. Release Reporting Requirements

The specific procedures for reporting unauthorized releases are provided in Article 5. All unauthorized releases must be reported by tank owners and operators to local agencies. Two types of reporting procedures (one requiring immediate reporting and one requiring only initial recording with reporting as part of normal operating reports) are required depending on the threat of the unauthorized release to contamination of soil and water. The specified reporting procedures include the information that must be reported, how and when to report an unauthorized release, local agency responsibilities, and how to determine the integrity of the underground tank after a release.

Article 5 requires that this information be provided to the local agency initially and, as such, does not mandate any additional cost beyond that presently required for reporting. Determining the integrity of the underground storage tank after the unauthorized release would normally be required by the Regional Board in any subsequent investigation, and no additional cost would be incurred.

## Article 6. Allowable Repairs

The proposed regulations allow a one-time repair of a tank that has not exceeded specified levels of failure. The tank owner proposing to repair the tank must demonstrate to the local agency that all modes of failure affecting the tank have been identified and that the proposed repair will correct the failure. For steel tanks, an ultrasonic test or visual inspection is required to determine if a corrosion problem exists. The tank repairs are required to be performed using accepted engineering practices with materials that are compatible with the tank and the hazardous substance(s) being stored. Following the repair, the tank owner must demonstrate that the repair was successful and that the tank will provide containment.

The regulations require that the underground storage tank repair be accomplished according to the applicable subsections of Section 2662 and monitored according to Section 2663. These sections required that nationally recognized engineering standards be used for the repair and monitoring of repaired underground storage tanks. At present, some counties in the State will not allow the repair of underground storage tanks under any circumstances. The fact that the proposed regulations allow for underground tank repair provides the owner and/or operator with a fiscal benefit over previous requirements in

those areas. With recognized engineering standards being required as is common practice and the benefit of allowing tank repairs in areas which presently do not allow repairs, it was assumed that the tank repair requirements do not impose any additional costs on tank owners.



## Article 7. Closure Requirements

The proposed regulations provide the actions and evaluations which must be completed by the underground storage tank owner when the tank is either temporarily or permanently taken out of service. Under temporary closure, an underground storage tank may be taken out of service for up to two years without implementing permanent closure. The regulations require that a formal closure plan be submitted to the local agency prior to closure.

All residual hazardous substances must be removed from the underground storage tank for temporary and permanent closure. Flammable vapors must be purged from the tank. Temporary closure requires that the tank openings be sealed and that the electrical supplies to pumps be disconnected. Monitoring of the underground storage tanks may be required during the temporary closure period.

Permanent closure of an underground storage tank requires either removal of the tank or closure in place. Removal requires that the owner notify the local agency of how the tank was disposed of. Closure in place may require the removal of all piping and filling of the underground storage tank with inert material.

Table 7.1. Estimated Additional Cost Resulting from Closure of Existing Underground Storage Tanks

| Owner of Existing Underground Storage Tanks             | Private Industry | State  | County | City   | School Districts | TOTAL     |
|---|------------------|--------|--------|--------|------------------|-----------|
| Annual Number of Underground Storage Tanks To Be Closed | 7,020            | 120    | 140    | 140    | 80               | 7,500     |
| Annual Cost for Closure of Underground Storage Tanks    | 947,700          | 16,200 | 18,900 | 18,900 | 10,800           | 1,012,500 |

## Article 8. Categorical and Site-Specific Variance Procedures

Procedures for obtaining categorical and site-specific variances from the construction standards of Article 3 and the monitoring standards for Articles 3 and 4 are provided in Article 8. The fees for petitioning for such variances are also included. The fee amounts were determined by estimating the amount of review time required by an Associate Water Resources Control Engineer or Environmental Specialist III and the estimated cost of holding public hearings.

The varying magnitude of staff review time required for the variance procedure is based on the population of affected area and the amount of specific data which must be reviewed and analyzed by the Board staff. The cost of a staff year for either an Associate Water Resources Control Engineer or Environmental Specialist III is \$55,000. The costs of a public hearing were estimated from review of costs for hearings held by the Division of Water Rights and are between \$5,000 and \$10,000. The lower cost is associated with simple noncontroversial public hearings while the higher cost is associated with the more controversial public hearings.

Categorical variances apply to variances from construction and/or monitoring requirements set forth in the proposed regulations and apply to locations statewide. Most of these variances will be generated as the result of new technology or challenges to the proposed regulations. Staff time to review completeness and accuracy of the variance request, the technological feasibility, the ability of the proposed alternative system to protect or monitor water quality, and time required to prepare the CEQA documents is estimated to be 0.1 staff years. Five categorical variance requests are expected each year.

Health and Safety Code Section 25299.4 [formerly Section 25288.3] requires two public hearings be held for each variance request. One of these hearings is assumed to be held as part of a regularly scheduled Board meeting and would therefore incur no additional cost to the applicant. The second public hearing is assumed to be held specifically to consider the proposed variance, therefore the cost for this hearing will be borne by the applicant. Since categorical variances affect areas statewide, the variance hearing should be well attended and be somewhat controversial. Therefore, public hearing costs are estimated to cost \$7,500. This cost is between noncontroversial and very controversial public hearing costs. As such, the fee is calculated as follows:

1 public hearing at \$ 7,500 each = \$ 7,500

Site-specific variances apply to variances from construction and/or monitoring requirements of the proposed regulations and are applicable to one specific site or several sites within one local agency's jurisdiction. Most of these variances will be based on the specific circumstances concerning the type of business. Staff time to review the completeness and accuracy of the variance request, the technological feasibility, the special circumstances requiring the variance, the ability of the system to protect or monitor water quality and review the CEQA documents is estimated to be 0.05 staff year for a single site or 0.1 staff year for a variance covering several sites. Sixty site-specific variance requests are expected each year, half for single site variances and half for multiple site variances.

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The fees for site-specific variances are calculated as follows:

Single Site Variance

$$0.05 \text{ Staff Year} \times \$55,000 = \$2,750$$

Multiple Site Variance

$$0.1 \text{ Staff Year} \times \$55,000 = \$5,500$$

For purposes of determining the fiscal impact of the proposed regulations for categorical and site-specific variances, it was assumed that applications for these variances would be submitted by owners of private industry tanks only. As such, the annual cost to private industry resulting from Article 8 would be \$337,500.

## Article 9. Local Agency Additional Standards Request Procedures

The procedures which must be followed by local agencies to request authorization from the State Board for implementing more stringent standards than those set by Articles 3 and 4 of the proposed regulations are provided in Article 9. The proposed regulations describe request procedures which include identifying information needed to evaluate the request, review and public hearing procedures and scheduling, effective dates, and allowing the State Board to modify or revoke additional standards.

As in Article 8, a fee must be submitted to the State Board. The fee amounts were arrived at by estimating the amount of review time by an Associate Water Resources Control Engineer or Environmental Specialist III. These requests affect entire county or city jurisdictions. Staff time needed to review completeness and accuracy of the request, technological feasibility, the ability of the proposed standards to protect or monitor water quality and review and the California Environmental Quality Act (CEQA) documents was estimated at 0.1 staff years per request.

The Health and Safety Code Section 25299.4(b) [formerly Section 25288.3(b)] requires at least one public hearing be held for each request, however, it is assumed that this hearing will be held as part of a regularly scheduled Board meeting and will therefore incur no additional cost to the local agency.

The fee for local agency variances is calculated as follows:

$$0.1 \text{ SY} \times \$55,000 = \$5,500 \text{ per request.}$$

For purposes of determining the fiscal impact of the proposed regulations for additional standards requests, it was assumed that applications for these variances would be submitted by county governments only and ten (10) applications would be reviewed annually. As such, the annual cost to county government resulting from Article 9 would be \$55,000.



Article 10. Permit Application, Annual Report, and Trade  
Secret Requirements

The proposed regulations establish specific administrative actions that must be accomplished by all tank owners, local agencies, and the State Board relative to issuing permits for underground storage tanks. As specified in Section 2711 of the regulations, the underground tank owner must provide the following information in the required permit application, if it is accurately known to the permit applicant:

- (1) The name and address of the person, firm, corporation, or public agency which owns the underground storage tank or tanks;
- (2) The name, location, mailing address, phone number, and type of facility where the underground storage tank is located and type of business;
- (3) The name, address, and telephone numbers of the underground storage tank operator and 24-hour emergency contact person;
- (4) The name and telephone number of the person making the application;

- (5) The underground storage tank description including, but not limited to, tank and auxiliary equipment manufacturer, year of manufacture, capacity, history of repairs and operation methods schedule;
- (6) The underground storage tank (tank, piping and auxiliary equipment) construction details, including, but not limited to, type and thickness of primary containment, type and thickness of secondary containment, installation procedures and backfill, lining, wrapping, and cathodic protection methods (if applicable);
- (7) A diagram of the design or as-built drawings which indicate the location of the underground storage tank (tank, piping, auxiliary equipment) with respect to buildings or other landmarks;
- (8) The description of the proposed monitoring program including, but not limited to, the following, where applicable:
  - (a) visual;
  - (b) tank testing or inspection procedures;
  - (c) inventory controls including gauging and reconciliation methods;

- (d) soils sampling locations, methods and analysis procedures;
  - (e) vadose zone sampling locations, methods and analysis procedures;
  - (f) ground water well(s) locations, construction and completion methods, sampling and analysis procedures;
  - (g) frequency and sensitivity of any monitoring method, sensing instrument, or analytical method;
- (9) A list of all the substances which previously, currently or are proposed to be stored in the underground storage tank or tanks;
- (10) If the owner or operator of the underground storage tank is a public agency, the application shall include the name of the supervisor of the division, section, or office which operates the tank; and
- (11) The permit application must be signed by (A) a principal executive officer at the level of vice-president or by an authorized representative. The representative must be responsible for the overall operation of the facility where

the tank(s) are located, (B) a general partner proprietor, or (C) a principal executive officer, ranking elected official or authorized representative of a public agency.

As illustrated by the forms presented in Appendix A, the Sample Hazardous Substance Storage Statement (HSSS) Form required for Chapter 1045 of the Statutes of 1983 (Assembly Bill 2013, Cortese, 1983) and the State Board Permit Application Form necessitate the same information for requirements (1) through (5) and (9) through (12). The additional information entailed in requirements (6) through (8) are developed in other aspects of the regulatory program, and the associated cost is not included as that required by this article. The underground storage tank construction details (i.e., tank, piping, and auxiliary equipment) entailed in requirements (6) and (7) are developed for the tank owner in the facility design and during construction, and these documents need only be reproduced for the local agency to satisfy the permit requirements. New underground tank facilities are required to provide the construction information cited above under all circumstances. For many existing underground storage tanks, the construction information is not accessible, and the tank owner is not required to provide the information unless it can be developed at a reasonable cost.

The proposed monitoring program as detailed in requirement (8) is mandated for all existing underground storage tanks in Article 4 of the regulations. As such, the cost of developing the

monitoring program and all of the associated information for its implementation are included in the costs developed for that article. The permitting program requires only that this information be reproduced and included in the permit application.

The costs for providing the information required in the permit applications was assumed to be \$25 per underground storage tank and includes the labor cost for filling out the form(s) and the labor and material cost for reproducing the facility construction plans and/or as-built information.

As specified in Section 2711(c) of the regulations, the local agency may require a fee to cover the necessary and reasonable costs of permitting and inspection of underground storage tanks. The city and county agencies that implemented underground tank programs prior to January 1, 1984, have developed a fee schedules for both the permitting and inspection requirements of their regulations. These fees vary between agencies depending on their assessment of the costs involved with implementing the program and the number of underground storage tanks subject to the local regulations. The methods of applying the fees also differ, with some based on the number of underground storage tanks and others on the total volume of the tanks permitted and/or inspected at the facility.

monitoring program and all of the associated information for its implementation are included in the costs developed for that article. The permitting program requires only that this information be reproduced and included in the permit application.

The costs for providing the information required in the permit applications was assumed to be \$25 per underground storage tank and includes the labor cost for filling out the form(s) and the labor and material cost for reproducing the facility construction plans and/or as-built information.

(OAL 119a)

A commenter indicated that costs to administer the inspection/permit application program at the local jurisdiction level had not been addressed: [111] This comment is rejected. The local agency costs for permitting and inspection programs are addressed on the following pages.

As specified in Section 2711(c) of the regulations, the local agency may require a fee to cover the necessary and reasonable costs of permitting and inspection of underground storage tanks. The city and county agencies that implemented underground tank programs prior to January 1, 1984, have developed a fee schedules for both the permitting and inspection requirements of their regulations. These fees vary between agencies depending on their assessment of the costs involved with implementing the program and the number of underground storage tanks subject to the local

An average permitting and inspection fee was developed for the city and county underground tank programs using fee schedules provided by local agencies implementing programs and the average tank volume (9,600 gallons) and number of tanks (2.9) developed for Article 3. The average permitting fee was determined to be \$120 per tank for city implemented programs and \$100 per tank for county implemented programs; with annual inspection fees of \$60 and \$50 for city and county implemented programs, respectively (Reference 32).

Cities and counties which implemented their own underground tank programs prior to January 1, 1984 may waive the initial permitting and annual inspection fees for their own underground storage tanks. The percentage of city owned underground storage tanks in this category was evaluated using the number of incorporated cities implementing their own underground storage tank program (Reference 1) and the population of the individual incorporated cities and the total for the entire state (Reference 2). Accordingly, approximately 35 percent of city owned underground storage tanks would be exempt from the county fee requirements.

The statute provides that the State Board shall include a surcharge to be determined annually to cover its costs in carrying out its responsibilities under the regulations. The surcharge has been set at \$28 per tank, based on an estimate of

100,000 tanks statewide subject to the surcharge. This surcharge will be reviewed annually by the legislature. Tanks located in Santa Clara County and cities therein have been exempted from the State surcharge requirement. These tanks are estimated to comprise five (5) percent of all tanks in California based on an analysis of the tanks registered in the State by January 1985.

The estimated costs associated with implementation of Article 10 for underground storage tank owner are tabulated below:

Table 10.1. SUMMARY OF ESTIMATED COSTS FOR IMPLEMENTING  
ARTICLE 10

| Article 10 Requirement            | Frequency of Requirement | Estimated Cost to Tank Owners (dollars) |
|-----------------------------------|--------------------------|---|
| Permit Preparation                | once every 5 years       | 25                                      |
| Permitting Fee                    | once every 5 years       | 120                                     |
| State Board<br>Surcharge(1)       | once every 5 years       | 28                                      |
| Inspection by<br>local government | annually                 | 60                                      |

(1) Subject to annual re-adjustment by the Legislature.



### Summary of Fiscal Impact

As discussed in Article 1, the cost estimates in this fiscal impact statement are based on the assumption that all underground storage tanks in the State not subject to these regulations will be subject to equivalent ordinances. In addition to this, the following assumptions were made in developing the total cost for this program:

- (1) All underground tanks have an average life of 20 years.
- (2) Existing (old) underground storage tanks (based on 1985 total) are replaced at the rate of five (5) percent annually.
- (3) Construction of new underground storage tanks due to business expansion is two (2) percent annually.
- (4) Installment of monitoring systems and permitting of existing (old) tanks will be completed over the three (3) year period from 1985 through 1987.

Initial and annual costs for both new and old underground storage tanks, as well as the total cost of implementing Chapter 1046 of the Statutes of 1983 (Assembly Bill 1362, Sher, 1983) are given in five year increments in Tables S.1 through S.5.

The initial fiscal impact statement was used to develop the Standard Form 399 submitted to the Department of Finance on August 10, 1984 (Appendix C). Any differences between the initial and the updated fiscal impact on state and local governments resulted from changes in the monitoring requirements (alternatives) and associated costs in Article 4 and reevaluation of the number of underground storage tanks owned by these respective agencies.

TABLE S.1. SUMMARY OF FISCAL IMPACT OF UNDERGROUND STORAGE TANK REGULATIONS FROM 1985-1989

| Owner of Underground Storage Tank | Total Number of Tanks <sup>1/</sup> | Number of Old Tanks <sup>1/</sup><br>Number of New Tanks <sup>1/</sup> | AVERAGE YEARLY INITIAL COST (dollars x 1000)             |   |                                   | AVERAGE ANNUAL COST (dollars x 1000)               |                                       |               |                  |                    |  | TOTAL COSTS (Dollars x 1000) |
|-----------------------------------|-------------------------------------|--|--|---|-----------------------------------|--|---------------------------------------|---------------|------------------|--------------------|--|------------------------------|
|                                   |                                     |  | State Surcharge & Initial Permitting Costs <sup>2/</sup> | Additional Construction & Monitoring Installation Costs | TOTAL INITIAL COSTS <sup>2/</sup> | State Surcharge & Repermitting Costs <sup>2/</sup> | Annual Inspection Costs <sup>2/</sup> | Closure Costs | Monitoring Costs | TOTAL ANNUAL COSTS | Categorical, Site-Specific, & Additional Standards Costs |                              |
| Private Industry                  | 120,750                             | 91,260   | 4,129  | 40,338  | 44,467                            | 0  | 4,212                                 | 0             | 92,720           | 96,932             | 338  | 240,602                      |
|                                   |                                     | 29,490   | 1,700  | 74,992  | 76,692                            | 0  | 1,179                                 | 945           | 20,049           | 22,173             |  |                              |
| State of California               | 2,150                               | 1,630  | 74   | 720   | 794                               | 0  | 75                                    | 0             | 1,654            | 1,729              | 0  | 4,287                        |
|                                   |                                     | 520  | 30   | 1,338   | 1,368                             | 0  | 21                                    | 17            | 358              | 396                |  |                              |
| City Governments                  | 2,490                               | 1,880  | 56   | 832   | 888                               | 0  | 57                                    | 0             | 1,912            | 1,969              | 0  | 4,875                        |
|                                   |                                     | 610  | 23   | 1,546   | 1,569                             | 0  | 16                                    | 20            | 413              | 449                |  |                              |
| County Governments                | 2,320                               | 1,760  | 13   | 776   | 789                               | 0  | 0                                     | 0             | 1,783            | 1,783              | 55   | 4,478                        |
|                                   |                                     | 560  | 5  | 1,442   | 1,447                             | 0  | 0                                     | 18            | 386              | 404                |  |                              |
| School Districts                  | 1,290                               | 970  | 44   | 431   | 475                               | 0  | 45                                    | 0             | 991              | 1,036              | 0  | 2,567                        |
|                                   |                                     | 320  | 18   | 801   | 819                               | 0  | 13                                    | 10            | 214              | 237                |  |                              |
| TOTALS                            | 129,000 <sup>3/</sup>               | 129,000  | 6,092  | 123,216   | 129,308                           | 0  | 5,618                                 | 1,010         | 120,480          | 127,108            | 393  | 256,809                      |

<sup>1/</sup> Average number of tanks each year.

<sup>2/</sup> Excludes permitting fees and annual inspection costs for tanks owned by counties and cities implementing underground tank regulations (See Table 10.1).

<sup>3/</sup> The total average number of tanks per year is 129,000 due to the assumption that permitting of existing tanks will be completed over a three year period. Accordingly, only during the last two years does the number of tanks subject to these regulations exceed 150,000.

TABLE S.2. SUMMARY OF FISCAL IMPACT OF UNDERGROUND STORAGE TANK REGULATIONS FROM 1990-1994

| Owner of<br>Underground<br>Storage Tank | Total<br>Number<br>of Tanks <sup>1/</sup> | Number of<br>Old Tanks <sup>1/</sup><br>Number of<br>New Tanks <sup>1/</sup> | AVERAGE YEARLY INITIAL COST<br>(dollars x 1000)                                      |   |   | AVERAGE ANNUAL COST (dollars x 1000)                     |   |                  |                     |                          |   | TOTAL<br>COSTS<br>(Dollars<br>x 1000) |
|---|---|--|--|---|---|--|---|------------------|---------------------|--------------------------|---|---------------------------------------|
|   |   |  | State<br>Surcharge &<br>Initial<br>Permitt- <sup>2/</sup><br>ing Costs <sup>2/</sup> | Additional<br>Construction<br>& Monitoring<br>Installation<br>Costs | TOTAL<br>INITIAL<br>COSTS <sup>2/</sup> | State Surcharge<br>& Repermitting<br>Costs <sup>2/</sup> | Annual<br>Inspection<br>Costs <sup>2/</sup> | Closure<br>Costs | Monitoring<br>Costs | TOTAL<br>ANNUAL<br>COSTS | Categorical,<br>Site-Specific<br>& Additional<br>Standards<br>Costs |                                       |
| Private<br>Industry                     | 163,800                                   | 82,240   | 0  | 0   | 0                                       | 2,915  | 5,476                                       | 0                | 85,588              | 93,979                   | 338   | 234,838                               |
|   |   | 79,560   | 1,765  | 77,845  | 79,610                                  | 1,700  | 4,165                                       | 945              | 54,101              | 60,911                   |   |                                       |
| State of<br>California                  | 2,920                                     | 1,500  | 0  | 0   | 0                                       | 44   | 98  | 0                | 1,527               | 1,669                    | 0   | 4,170                                 |
|   |   | 1,420  | 26   | 1,389   | 1,415                                   | 30   | 74  | 17               | 965                 | 1,086                    |   |                                       |
| City<br>Governments                     | 3,380                                     | 1,740  | 0  | 0   | 0                                       | 39   | 74  | 0                | 1,765               | 1,878                    | 0   | 4,721                                 |
|   |   | 1,640  | 24   | 1,605   | 1,629                                   | 23   | 56  | 19               | 1,116               | 1,214                    |   |                                       |
| County<br>Governments                   | 3,150                                     | 1,620  | 0  | 0   | 0                                       | 17   | 0   | 0                | 1,646               | 1,663                    | 55  | 4,288                                 |
|   |   | 1,530  | 10   | 1,497   | 1,507                                   | 5  | 0   | 18               | 1,040               | 1,063                    |   |                                       |
| School<br>Districts                     | 1,750                                     | 900  | 0  | 0   | 0                                       | 31   | 58  | 0                | 914                 | 1,003                    | 0   | 2,504                                 |
|   |   | 850  | 19   | 832   | 851                                     | 18   | 44  | 10               | 578                 | 650                      |   |                                       |
| TOTALS                                  | 175,000                                   | 175,000  | 1,844  | 83,168  | 85,012                                  | 4,822  | 10,045                                      | 1,009            | 149,240             | 165,116                  | 393   | 250,521                               |

<sup>1/</sup> Average number of tanks each year.<sup>2/</sup> Excludes permitting fees and annual inspection costs for tanks owned by counties and cities implementing underground tank regulations (See Table 10.1).

TABLE S.3. SUMMARY OF FISCAL IMPACT OF UNDERGROUND STORAGE TANK REGULATIONS FROM 1995-1999

| Owner of Underground Storage Tank | Total Number of Tanks <sup>1/</sup> | Number of Old Tanks <sup>1/</sup><br>Number of New Tanks <sup>1/</sup> | AVERAGE YEARLY INITIAL COST (dollars x 1000)             |   |                                   | AVERAGE ANNUAL COST (dollars x 1000)               |                                       |               |                  |                    |  | TOTAL COSTS (Dollars x 1000) |
|-----------------------------------|-------------------------------------|--|--|---|-----------------------------------|--|---------------------------------------|---------------|------------------|--------------------|--|------------------------------|
|                                   |                                     |  | State Surcharge & Initial Permitting Costs <sup>2/</sup> | Additional Construction & Monitoring Installation Costs | TOTAL INITIAL COSTS <sup>2/</sup> | State Surcharge & Repermitting Costs <sup>2/</sup> | Annual Inspection Costs <sup>2/</sup> | Closure Costs | Monitoring Costs | TOTAL ANNUAL COSTS | Categorical, Site-Specific, & Additional Standards Costs |                              |
| Private Industry                  | 181,580                             | 49,140   | 0  | 0   | 0                                 | 1,700  | 3,370                                 | 0             | 49,926           | 54,996             | 338  | 239,403                      |
|                                   |                                     | 132,440  | 1,862  | 82,134  | 83,996                            | 1,765  | 7,301                                 | 945           | 90,062           | 100,073            |  |                              |
| State of California               | 3,240                               | 880  | 0  | 0   | 0                                 | 25   | 60                                    | 0             | 891              | 976                | 0  | 4,249                        |
|                                   |                                     | 2,360  | 28   | 1,465   | 1,493                             | 26   | 130                                   | 17            | 1,607            | 1,780              |  |                              |
| City Governments                  | 3,740                               | 1,010  | 0  | 0   | 0                                 | 23   | 45                                    | 0             | 1,029            | 1,097              | 0  | 4,815                        |
|                                   |                                     | 2,730  | 25   | 1,694   | 1,719                             | 24   | 99                                    | 19            | 1,857            | 1,999              |  |                              |
| County Governments                | 3,500                               | 950  | 0  | 0   | 0                                 | 10   | 0                                     | 0             | 960              | 970                | 55   | 4,376                        |
|                                   |                                     | 2,550  | 11   | 1,580   | 1,591                             | 10   | 0                                     | 18            | 1,732            | 1,760              |  |                              |
| School Districts                  | 1,940                               | 520  | 0  | 0   | 0                                 | 18   | 36                                    | 0             | 533              | 587                | 0  | 2,553                        |
|                                   |                                     | 1,420  | 20   | 877   | 897                               | 19   | 78                                    | 10            | 962              | 1,069              |  |                              |
| TOTALS                            | 194,000                             | 194,000  | 1,946  | 87,750  | 89,696                            | 3,620  | 11,119                                | 1,009         | 149,559          | 165,307            | 393  | 255,396                      |

<sup>1/</sup> Average number of tanks each year.<sup>2/</sup> Excludes permitting fees and annual inspection costs for tanks owned by counties and cities implementing underground tank regulations (See Table 10.1).

TABLE S.4. SUMMARY OF FISCAL IMPACT OF UNDERGROUND STORAGE TANK REGULATIONS FROM 2000-2004

| Owner of<br>Underground<br>Storage Tank | Total<br>Number<br>of Tanks <sup>1/</sup> | Number of<br>Old Tanks <sup>1/</sup><br>Number of<br>New Tanks <sup>1/</sup> | AVERAGE YEARLY INITIAL COST<br>(dollars x 1000)                        |   |   | AVERAGE ANNUAL COST (dollars x 1000)                     |   |                  |                     |                          |   | TOTAL<br>COSTS<br>(Dollars<br>x 1000) |
|---|---|--|--|---|---|--|---|------------------|---------------------|--------------------------|---|---------------------------------------|
|   |   |  | State<br>Surcharge &<br>Initial<br>Permitt-<br>ing Costs <sup>2/</sup> | Additional<br>Construction<br>& Monitoring<br>Installation<br>Costs | TOTAL<br>INITIAL<br>COSTS <sup>2/</sup> | State Surcharge<br>& Repermitting<br>Costs <sup>2/</sup> | Annual<br>Inspection<br>Costs <sup>2/</sup> | Closure<br>Costs | Monitoring<br>Costs | TOTAL<br>ANNUAL<br>COSTS | Categorical,<br>Site-Specific<br>& Additional<br>Standards<br>Costs |                                       |
| Private<br>Industry                     | 200,310                                   | 14,040   | 0  | 0   | 0                                       | 486  | 1,264                                       | 0                | 14,388              | 16,138                   | 338   | 240,469                               |
|   |   | 186,270  | 1,862  | 82,134  | 83,996                                  | 1,862  | 10,530                                      | 945              | 126,660             | 139,997                  |   |                                       |
| State of<br>California                  | 3,570                                     | 250  | 0  | 0   | 0                                       | 7  | 23  | 0                | 257                 | 287                      | 0   | 4,273                                 |
|   |   | 3,320  | 28   | 1,465   | 1,493                                   | 28   | 188   | 17               | 2,260               | 2,493                    |   |                                       |
| City<br>Governments                     | 4,130                                     | 290  | 0  | 0   | 0                                       | 7  | 17  | 0                | 297                 | 321                      | 0   | 4,336                                 |
|   |   | 3,840  | 25   | 1,694   | 1,719                                   | 25   | 142   | 19               | 2,612               | 2,798                    |   |                                       |
| County<br>Governments                   | 3,850                                     | 270  | 0  | 0   | 0                                       | 3  | 0   | 0                | 277                 | 280                      | 55  | 4,390                                 |
|   |   | 3,580  | 11   | 1,597   | 1,590                                   | 11   | 0   | 18               | 2,436               | 2,465                    |   |                                       |
| School<br>Districts                     | 2,140                                     | 150  | 0  | 0   | 0                                       | 5  | 14  | 0                | 154                 | 173                      | 0   | 2,566                                 |
|   |   | 1,990  | 20   | 878   | 898                                     | 20   | 112   | 10               | 1,353               | 1,495                    |   |                                       |
| TOTALS                                  | 214,000                                   | 214,000  | 1,946  | 87,750  | 89,696                                  | 2,454  | 12,290                                      | 1,009            | 150,694             | 166,447                  | 393   | 256,536                               |

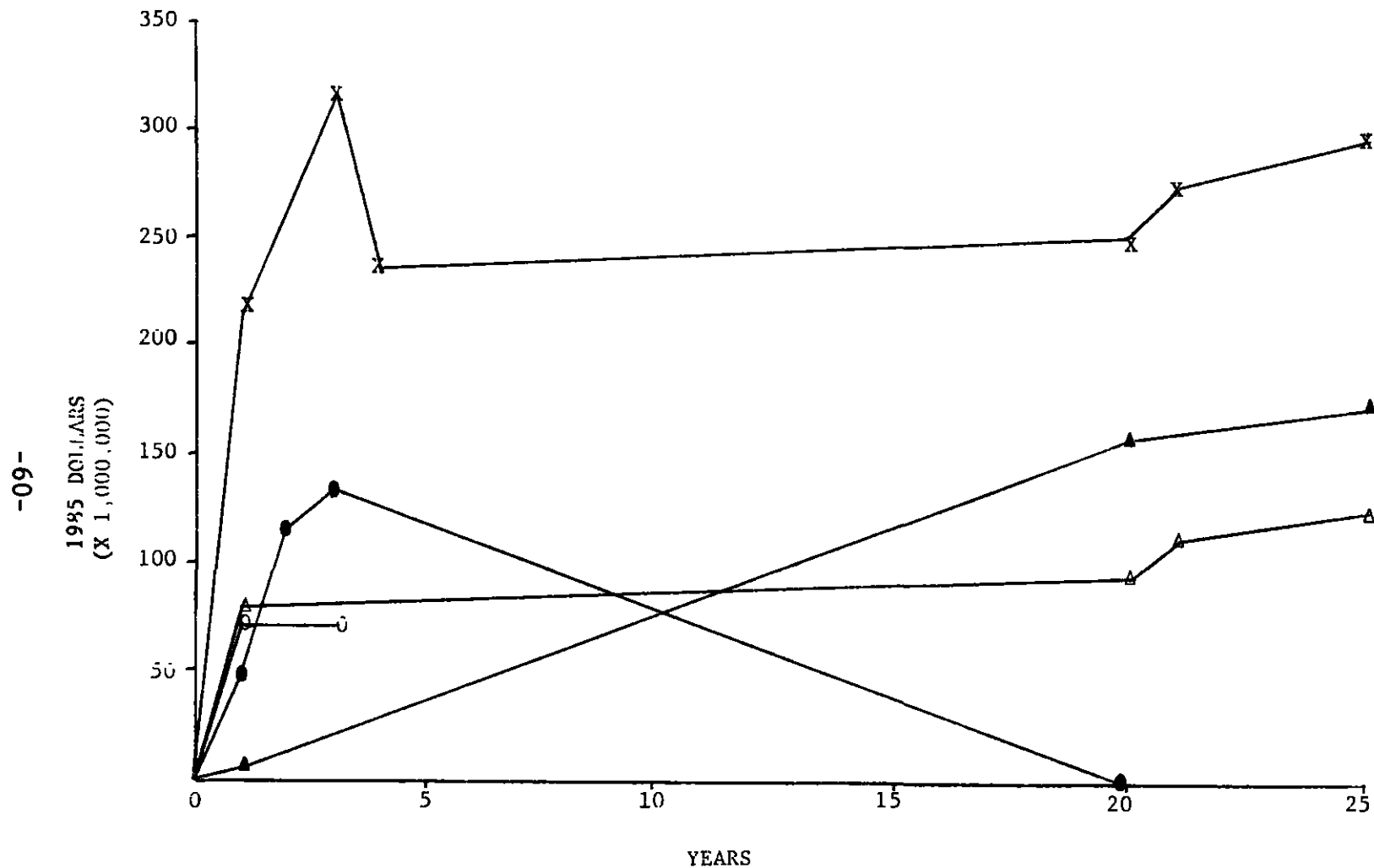
<sup>1/</sup> Average number of tanks each year.<sup>2/</sup> Excludes permitting fees and annual inspection costs for tanks owned by counties and cities implementing underground tank regulations (See Table 10.1).

TABLE S.5. SUMMARY OF FISCAL IMPACT OF UNDERGROUND STORAGE TANK REGULATIONS FROM 2005-2009

| Owner of Underground Storage Tank | Total Number of Tanks <sup>1/</sup> | Number of Old Tanks <sup>1/</sup><br>Number of New Tanks <sup>1/</sup> | AVERAGE YEARLY INITIAL COST<br>(dollars x 1000)          |   |                                   | AVERAGE ANNUAL COST (dollars x 1000)               |                                       |                               |                                 |                                 |  | TOTAL COSTS<br>(Dollars x 1000) |
|-----------------------------------|-------------------------------------|--|--|---|-----------------------------------|--|---------------------------------------|-------------------------------|---------------------------------|---------------------------------|--|---------------------------------|
|                                   |                                     |  | State Surcharge & Initial Permitting Costs <sup>2/</sup> | Additional Construction & Monitoring Installation Costs | TOTAL INITIAL COSTS <sup>2/</sup> | State Surcharge & Repermitting Costs <sup>2/</sup> | Annual Inspection Costs <sup>2/</sup> | Closure Costs                 | Monitoring Costs                | TOTAL ANNUAL COSTS              | Categorical, Site-Specific, & Additional Standards Costs |                                 |
| Private Industry                  | 220,990                             | <div>0</div> <div>220,990</div>  | <div>0</div> <div>2,477</div>                            | <div>0</div> <div>109,270</div>                         | <div>0</div> <div>111,747</div>   | <div>0</div> <div>1,862</div>                      | <div>0</div> <div>12,990</div>        | <div>0</div> <div>1,329</div> | <div>0</div> <div>150,273</div> | <div>0</div> <div>166,454</div> | 338  | 278,539                         |
| State of California               | 3,940                               | <div>0</div> <div>3,940</div>  | <div>0</div> <div>37</div>                               | <div>0</div> <div>1,950</div>                           | <div>0</div> <div>1,987</div>     | <div>0</div> <div>28</div>                         | <div>0</div> <div>232</div>           | <div>0</div> <div>24</div>    | <div>0</div> <div>2,681</div>   | <div>0</div> <div>2,965</div>   | 0  | 4,952                           |
| City Governments                  | 4,560                               | <div>0</div> <div>4,560</div>  | <div>0</div> <div>33</div>                               | <div>0</div> <div>2,253</div>                           | <div>0</div> <div>2,286</div>     | <div>0</div> <div>25</div>                         | <div>0</div> <div>175</div>           | <div>0</div> <div>27</div>    | <div>0</div> <div>3,099</div>   | <div>0</div> <div>3,326</div>   | 0  | 5,612                           |
| County Governments                | 4,250                               | <div>0</div> <div>4,250</div>  | <div>0</div> <div>15</div>                               | <div>0</div> <div>2,101</div>                           | <div>0</div> <div>2,116</div>     | <div>0</div> <div>11</div>                         | <div>0</div> <div>0</div>             | <div>0</div> <div>26</div>    | <div>0</div> <div>2,890</div>   | <div>0</div> <div>2,927</div>   | 55   | 5,098                           |
| School Districts                  | 2,360                               | <div>0</div> <div>2,360</div>  | <div>0</div> <div>26</div>                               | <div>0</div> <div>1,167</div>                           | <div>0</div> <div>1,193</div>     | <div>0</div> <div>20</div>                         | <div>0</div> <div>139</div>           | <div>0</div> <div>14</div>    | <div>0</div> <div>1,605</div>   | <div>0</div> <div>1,778</div>   | 0  | 2,971                           |
| TOTALS                            | 236,100                             | 236,100  | 2,588  | 116,741   | 119,329                           | 1,946  | 13,536                                | 1,420                         | 160,548                         | 177,450                         | 393  | 297,172                         |

<sup>1/</sup> Average number of tanks each year.<sup>2/</sup> Excludes permitting fees and annual inspection costs for tanks owned by counties and cities implementing underground tank regulations (See Table 10.1).

FIGURE S.1 ESTIMATED STATEWIDE ANNUAL COST OF IMPLEMENTING ASSEMBLY BILL 1362  
UNDERGROUND TANK REGULATIONS



LEGEND

- O - Initial Monitoring and Permitting Costs for Old Tanks
- - Annual Monitoring Costs and Re-Permitting Costs for Old Tanks
- Δ - Additional Costs for Installing New Tanks Including Initial Permitting Costs and Additional Closure Costs for Replacement of Old Tanks
- ▲ - Annual Monitoring and Re-Permitting Costs for New Tanks
- X - Total Costs



A P P E N D I C E S

**APPENDIX A**

**Example of California State Water Resources Control Board  
Hazardous Substance Storage Statement**

**Official Registration Form  
California Water Resources Control Board  
Hazardous Substance Storage Statement**



**Who Must File:** Each person storing hazardous substances in any underground container must file this form no later than July 1, 1984 (After October 1, 1984 and no later than January 1, 1985 for tanks used on farms).

**Definition of Underground Containers:** The law applies to concrete, masonry, metal, and other underground containers. (Water Code Section 13172) All containers, including earthen, lined pits, ponds, lagoons, and sumps that are below the normal ground surface level must register. A tank sitting on the ground is not included. Containers partially below the surface are included. Lined or unlined pits, ponds, and lagoons are included if earth has been removed from the storage area to construct the facility. Normal grading is not considered construction below ground level.

**Definition of Hazardous Substance:** Any substance listed in Section 6382 of the Labor Code or in Section 25316 of the Health and Safety Code. This includes gasoline, diesel fuel, all industrial solvents, pesticides, herbicides, and fumigants. If the material must be carried by a registered hauler, disposed of at a hazardous waste site, is explosive, generates pressure due to heat or decomposition, or would harm humans or wildlife, it must register.

the tank. Wastes are included.

**Fee:** For each tank registered, a \$10 fee must be paid, except that retail gasoline stations pay \$5 per tank.

**Penalties:** For failure to file, the penalty is \$500-\$1,000 per day. If you falsify information, you can be fined up to \$20,000 for each day the information is incorrect and has not been corrected.

**Confidentiality:** If you have information protected by trade secret laws, please attach a list of the information on this form that is confidential and file publication for confidentiality, including specific citations of relevant statutory and case law.

**Multiple Containers:** Fill I and II on one form and leave it blank on all the remaining forms. Attach all forms together securely. If you own more than 50 tanks, you can file information on computer tape. Call 916-374-1262 for information.

**This is not a Permit Application.** All Underground Tanks will be subject to local regulation. Some jurisdictions have already begun programs. Check with your local county government for further information.

**NOTE: ALL UNDERGROUND CONTAINERS MUST REGISTER EVEN IF STATE AND/OR LOCAL PERMITS ARE IN FORCE.**

**I Owner**

|  |  |      |           |
|--|--|------|-----------|
| Name (Corporation, Inc., or Public Agency) |  |      |           |
| Street Address                             |  | City | State ZIP |

**II Facility**

|                                  |                  |  |       |
|----------------------------------|------------------|--|-------|
| Facility Name                    |                  | Owner (Person, San Jose  |       |
| Nearest Address                  |                  | Nearest Cross Street   |       |
| City                             | County           | State  | ZIP   |
| Market Area                      | City             | State  | ZIP   |
| Phone (Area Code)                |                  | Type of Business   |       |
|                                  |                  | <input type="checkbox"/> Motor Vehicle Fuel Station <input type="checkbox"/> Other |       |
| Number of Tanks at this Facility | Rural Areas Only | Truck Type   | Usage |

**III 24 Hour Emergency Contact Person**

|   |                                 |
|---|---------------------------------|
| Day Name and Home or Cell Phone Numbers | 24 Hour Emergency Phone Numbers |
|---|---------------------------------|

**COMPLETE THE FOLLOWING ON A SEPARATE FORM FOR EACH CONTAINER**

**IV Description**

|  |  |   |
|--|--|---|
| A <input type="checkbox"/> Tank <input type="checkbox"/> Sump <input type="checkbox"/> Lagoon Pit or Pond <input type="checkbox"/> Other   |  | Container Number of this container (if any)       |
| B Manufacturer (if appropriate)  | Year of Mfg  | C Year Installed <input type="checkbox"/> Unknown |
| D Container Capacity gallons <input type="checkbox"/> Unknown  | E Container Repairs <input type="checkbox"/> None <input type="checkbox"/> Unknown <input type="checkbox"/> Yes Year |   |
| F Is Container currently used? <input type="checkbox"/> Yes <input type="checkbox"/> No If No year of last use <input type="checkbox"/> Unknown  |  |   |
| G Does the Container Store (Check One) <input type="checkbox"/> Waste <input type="checkbox"/> Product   |  |   |
| H Does the Container Store Motor Vehicle Fuel or Waste Oil? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes Check appropriate box(es)  |  |   |
| <input type="checkbox"/> Unleaded <input type="checkbox"/> Regular <input type="checkbox"/> Premium <input type="checkbox"/> Diesel <input type="checkbox"/> Waste Oil <input type="checkbox"/> Other (List) |  |   |

**V Container Construction**

|   |  |
|---|--|
| A Thickness of Primary Containment <input type="checkbox"/> Gauge <input type="checkbox"/> Inches <input type="checkbox"/> cm <input type="checkbox"/> Unknown  |  |
| B <input type="checkbox"/> Vaulted (Located in an underground Vault) <input type="checkbox"/> Non-vaulted <input type="checkbox"/> Unknown  |  |
| C <input type="checkbox"/> Double Walled <input type="checkbox"/> Single Walled <input type="checkbox"/> Lined <input type="checkbox"/> Wrapped <input type="checkbox"/> Unknown <input type="checkbox"/> None                          |  |
| D <input type="checkbox"/> Carbon Steel <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Fiberglass <input type="checkbox"/> Polyvinyl Chloride <input type="checkbox"/> Concrete <input type="checkbox"/> Aluminum    |  |
| <input type="checkbox"/> Steel Clad <input type="checkbox"/> Bronze <input type="checkbox"/> Composite <input type="checkbox"/> Non metallic <input type="checkbox"/> Earthen Walls   |  |
| <input type="checkbox"/> Unknown <input type="checkbox"/> Other   |  |
| F <input type="checkbox"/> Rubber Lined <input type="checkbox"/> Alkyd Lining <input type="checkbox"/> Epoxy Lining <input type="checkbox"/> Phenolic Lining <input type="checkbox"/> Glass Lining <input type="checkbox"/> Clay Lining |  |
| <input type="checkbox"/> Unlined <input type="checkbox"/> Unknown <input type="checkbox"/> Other  |  |
| F <input type="checkbox"/> Polyethylene Wrap <input type="checkbox"/> Vinyl Wrapping <input type="checkbox"/> Cathodic Protection <input type="checkbox"/> Unknown <input type="checkbox"/> None <input type="checkbox"/> Other         |  |

## VI Piping

|                       |                                       |                                      |   |                                  |
|-----------------------|---------------------------------------|--------------------------------------|---|----------------------------------|
| A. Associated Piping  | <input type="checkbox"/> Above Ground | <input type="checkbox"/> Underground | <input type="checkbox"/> Vaulted                              |                                  |
| B. Underground Piping | <input type="checkbox"/> Gravity      | <input type="checkbox"/> Pressure    | <input type="checkbox"/> Suction                              | <input type="checkbox"/> Unknown |
| C. Piping Repairs     | <input type="checkbox"/> None         | <input type="checkbox"/> Unknown     | <input type="checkbox"/> Yes Year of most recent repair _____ |                                  |

## VII Leak Detection

|  |  |  |  |  |
|--|--|--|--|--|
| <input type="checkbox"/> Visual                        | <input type="checkbox"/> Stock Inventory | <input type="checkbox"/> Tile Drain          | <input type="checkbox"/> Vapor Sniff Wells | <input type="checkbox"/> Sensor Instrument |
| <input type="checkbox"/> Ground Water Monitoring Wells | <input type="checkbox"/> Pressure Test   | <input type="checkbox"/> Internal Inspection | <input type="checkbox"/> None              |  |
| <input type="checkbox"/> Other _____                   |  |  |  |  |

## VIII Chemical Composition of Materials Currently or Previously Stored in Underground Containers

If you checked yes to IV, H you are not required to complete this section.

| currently stored         | previously stored        | CAS # (known) | Chemical Name (if known) (If not, add new page for other info) |
|--------------------------|--------------------------|---------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |
| <input type="checkbox"/> | <input type="checkbox"/> |               |  |

Is Container located on an Agricultural Farm? ☐ Yes ☐ No

## IX IMPORTANT! Read instructions before signing

**Signature:** The form must be signed by 1) a principal executive officer of the facility where the tanks are located, or 2) a general partner proprietor or 3) a principal executive officer ranking officer or authorized representative of a public agency. This form has been completed under the penalty of perjury and to the best of my knowledge is true and correct.

|            |             |
|------------|-------------|
| Signature  | Title       |
| Print Name | Print Title |

Send check to: California State Water Resources Control Board, P.O. Box 100, Sacramento, CA 95801-0100

|              |            |
|--------------|------------|
| Check Number | Check Date |
|--------------|------------|

For additional forms or more information call 916/324-1262

## FOR STATE USE ONLY

|             |           |         |
|-------------|-----------|---------|
| 1. State    | 2. County | 3. City |
| 4. District | 5. Office | 6. Date |

84 31697

**APPENDIX B**

**Example of California State Water Resources Control Board  
Permit Application**

# Permit Application



|  |   |  |  |
|--|---|--|--|
| <input type="checkbox"/> 01 New Permit<br><input type="checkbox"/> 02 Provisional Permit | <input type="checkbox"/> 03 Installed before July 1, 1984<br><input type="checkbox"/> 04 Installed after July 1, 1984 | <input type="checkbox"/> 05 Renewed Permit | <input type="checkbox"/> 06 Amended Permit |
|--|---|--|--|

## I Owner

|   |      |       |     |
|---|------|-------|-----|
| Name (Corporation, Individual or Public Agency) |      |       |     |
| Street Address                                  | City | State | ZIP |

## II Facility

|                                       |                  |  |       |
|---------------------------------------|------------------|--|-------|
| Facility Name                         |                  | Dealer/Foreman/Supervisor  |       |
| Street Address                        |                  | Nearest Cross Street   |       |
| City                                  |                  | County   |       |
| Mailing Address                       |                  | City   | State |
| Phone w/area code                     |                  | Type of Business<br><input type="checkbox"/> 01 Gasoline Station <input type="checkbox"/> 02 Other _____ |       |
| NUMBER OF CONTAINERS AT THIS FACILITY | Rural Area Only: | Township   | Range |
| Section                               |                  |  |       |

## III 24 Hour Emergency Contact Person

|   |   |
|---|---|
| Days Name (last name first) and Phone w/area code | Nights Name (last name first) and Phone w/area code |
|---|---|

**COMPLETE THE FOLLOWING ON A SEPARATE FORM FOR EACH CONTAINER**

## IV Description

|  |  |   |
|--|--|---|
| A <input type="checkbox"/> 01 Tank <input type="checkbox"/> 02 Other _____   |  | Container Number (If there is no number, assign one)    |
| B Manufacturer (if appropriate) _____ Year of Mfg. _____   |  | C Year Installed _____ <input type="checkbox"/> Unknown |
| D Container Capacity _____ gallons <input type="checkbox"/> Unknown  | E Does the Container Store (Check One) <input type="checkbox"/> 01 Waste <input type="checkbox"/> 02 Product |   |
| F Does the Container Store Motor Vehicle Fuel or Waste Oil? <input type="checkbox"/> 01 Yes <input type="checkbox"/> 02 No    If Yes, Check appropriate box(es)<br><input type="checkbox"/> 01 Unleaded <input type="checkbox"/> 02 Regular <input type="checkbox"/> 03 Premium <input type="checkbox"/> 04 Diesel <input type="checkbox"/> 05 Waste Oil <input type="checkbox"/> 06 Other (List) _____<br>If you answered yes; do not complete Part VIII. |  |   |

## V Container Construction

|  |  |
|--|--|
| A Thickness of Primary Containment _____ <input type="checkbox"/> Gauge <input type="checkbox"/> Inches <input type="checkbox"/> cm <input type="checkbox"/> Unknown   |  |
| B <input type="checkbox"/> 01 Vaulted (Located in an underground Vault) <input type="checkbox"/> 02 Non-vaulted <input type="checkbox"/> 03 Unknown  |  |
| C <input type="checkbox"/> 01 Double Walled <input type="checkbox"/> 02 Single Walled <input type="checkbox"/> 03 Lined  |  |
| D <input type="checkbox"/> 01 Carbon Steel <input type="checkbox"/> 02 Stainless Steel <input type="checkbox"/> 03 Fiberglass <input type="checkbox"/> 04 Polyvinyl Chloride <input type="checkbox"/> 05 Concrete <input type="checkbox"/> 06 Aluminum |  |
| <input type="checkbox"/> 07 Steel Clad <input type="checkbox"/> 08 Bronze <input type="checkbox"/> 09 Composite <input type="checkbox"/> 10 Non-metallic <input type="checkbox"/> 11 Earthen Walls   |  |
| <input type="checkbox"/> 12 Unknown <input type="checkbox"/> 13 Other _____  |  |

## Container Construction

|    |   |  |   |   |  |   |
|----|---|--|---|---|--|---|
| E  | <input type="checkbox"/> 01 Rubber Lined      | <input type="checkbox"/> 02 Alkyd Lining   | <input type="checkbox"/> 03 Epoxy Lining        | <input type="checkbox"/> 04 Phenolic Lining | <input type="checkbox"/> 05 Glass Lining | <input type="checkbox"/> 06 Clay Lining |
|    | <input type="checkbox"/> 07 Unlined           | <input type="checkbox"/> 08 Unknown        | <input type="checkbox"/> 09 Other: _____        |   |  |   |
| F. | <input type="checkbox"/> 01 Polyethylene Wrap | <input type="checkbox"/> 02 Vinyl Wrapping | <input type="checkbox"/> 03 Cathodic Protection |   |  |   |
|    | <input type="checkbox"/> 04 Unknown           | <input type="checkbox"/> 05 None           | <input type="checkbox"/> 06 tar or asphalt      | <input type="checkbox"/> 09 Other           |  |   |

## VI Piping

|                        |  |   |                                     |                                      |                                     |
|------------------------|--|---|-------------------------------------|--------------------------------------|-------------------------------------|
| A. Aboveground Piping: | <input type="checkbox"/> 01 Double-walled pipe | <input type="checkbox"/> 02 Concrete-lined trench | <input type="checkbox"/> 03 Gravity | <input type="checkbox"/> 04 Pressure | <input type="checkbox"/> 05 Suction |
|                        | [(Check) appropriate box(es)]                  |   |                                     |                                      |                                     |
|                        | <input type="checkbox"/> 06 Unknown            | <input type="checkbox"/> 07 None                  |                                     |                                      |                                     |
| B. Underground Piping: | <input type="checkbox"/> 01 Double-walled pipe | <input type="checkbox"/> 02 Concrete-lined trench | <input type="checkbox"/> 03 Gravity | <input type="checkbox"/> 04 Pressure | <input type="checkbox"/> 05 Suction |
|                        | [(Check) appropriate box(es)]                  |   |                                     |                                      |                                     |
|                        | <input type="checkbox"/> 06 Unknown            | <input type="checkbox"/> 07 None                  |                                     |                                      |                                     |

## VII Leak Detection

|   |   |   |   |   |
|---|---|---|---|---|
| <input type="checkbox"/> 01 Visual                        | <input type="checkbox"/> 02 Stock Inventory | <input type="checkbox"/> 03 Tile Drain          | <input type="checkbox"/> 04 Vapor Sniff Wells | <input type="checkbox"/> 05 Sensor Instrument |
| <input type="checkbox"/> 06 Ground Water Monitoring Wells | <input type="checkbox"/> 07 Pressure Test   | <input type="checkbox"/> 08 Internal Inspection | <input type="checkbox"/> 09 None              |   |
| <input type="checkbox"/> 10 Other: _____                  |   |   |   |   |

## VIII Chemical Composition of Materials *Currently or Previously* Stored in Underground Containers

If you checked yes to IV-F you are not required to complete this section.

| currently stored            | previously stored           | CAS # (if known) | Chemical Do Not Use Commercial Name Use additional paper for more room |
|-----------------------------|-----------------------------|------------------|--|
| <input type="checkbox"/> 01 | <input type="checkbox"/> 02 |                  |  |
| <input type="checkbox"/> 01 | <input type="checkbox"/> 02 |                  |  |
| <input type="checkbox"/> 01 | <input type="checkbox"/> 02 |                  |  |

|   |                                 |                                |
|---|---------------------------------|--------------------------------|
| Is Container located on an Agricultural Farm? | <input type="checkbox"/> 01 Yes | <input type="checkbox"/> 02 No |
|---|---------------------------------|--------------------------------|

|                           |                   |
|---------------------------|-------------------|
| Person Filing (Signature) | Phone w/area code |
|---------------------------|-------------------|

### For Local Agency Use Only

|                                  |                      |                   |                   |
|----------------------------------|----------------------|-------------------|-------------------|
| AGENCY NAME                      |                      | CITY              | COUNTY            |
| CONTACT PERSON                   |                      | PHONE W/AREA CODE |                   |
| INSPECTION DATE (1ST INSPECTION) | PERMIT APPROVAL DATE |                   | PERMIT ID. NUMBER |

### FOR STATE USE ONLY

|                  |                             |                             |
|------------------|-----------------------------|-----------------------------|
| STATE ID. NUMBER | Permitting Number           | County Number               |
| Date Received    | <input type="checkbox"/> 01 | <input type="checkbox"/> 02 |

# Permit Application



☐ 01 New Permit  
☐ 02 Provisional Permit

☐ 03 Installed before July 1, 1984  
☐ 04 Installed after July 1, 1984

☐ 05 Renewed Permit

☐ 06 Amended Permit

## I Owner

|  |      |       |     |
|--|------|-------|-----|
| Name (Corporation Individual or Public Agency) |      |       |     |
| Street Address                                 | City | State | ZIP |

## II Facility

|  |                      |  |               |
|--|----------------------|--|---------------|
| Facility Name                            |                      | Dealer / Foreman / Supervisor  |               |
| Street Address                           |                      | Nearest Cross Street   |               |
| City                                     |                      | County   | ZIP           |
| Mailing Address                          |                      | City   | State ZIP     |
| Phone w/area code                        |                      | Type of Business<br><input type="checkbox"/> 01 Gasoline Station <input type="checkbox"/> 02 Other _____ |               |
| NUMBER OF CONTAINERS<br>AT THIS FACILITY | Rural Areas<br>Only: | Township   | Range Section |

## III 24 Hour Emergency Contact Person

|   |   |
|---|---|
| Days Name (last name first) and Phone w/area code | Nights Name (last name first) and Phone w/area code |
|---|---|

**COMPLETE THE FOLLOWING ON A SEPARATE FORM FOR EACH CONTAINER**

## IV Description

|   |  |   |
|---|--|---|
| A <input type="checkbox"/> 01 Tank <input type="checkbox"/> 02 Other _____  |  | Container Number (If there is no number assign one)     |
| B Manufacturer (if appropriate) _____ Year of Mfg.. _____   |  | C Year Installed _____ <input type="checkbox"/> Unknown |
| D Container Capacity _____ gallons <input type="checkbox"/> Unknown   | E Does the Container Store (Check One) <input type="checkbox"/> 01 Waste <input type="checkbox"/> 02 Product |   |
| F Does the Container Store Motor Vehicle Fuel or Waste Oil? <input type="checkbox"/> 01 Yes <input type="checkbox"/> 02 No If Yes, Check appropriate box(es)<br><input type="checkbox"/> 01 Unleaded <input type="checkbox"/> 02 Regular <input type="checkbox"/> 03 Premium <input type="checkbox"/> 04 Diesel <input type="checkbox"/> 05 Waste Oil <input type="checkbox"/> 06 Other (List) _____<br>If you answered yes; do not complete Part VIII. |  |   |

## V Container Construction

|   |  |
|---|--|
| A Thickness of Primary Containment _____ <input type="checkbox"/> Gauge <input type="checkbox"/> Inches <input type="checkbox"/> cm <input type="checkbox"/> Unknown  |  |
| B <input type="checkbox"/> 01 Vaulted (Located in an underground Vault) <input type="checkbox"/> 02 Non-vaulted <input type="checkbox"/> 03 Unknown   |  |
| C <input type="checkbox"/> 01 Double Walled <input type="checkbox"/> 02 Single Walled <input type="checkbox"/> 03 Lined   |  |
| D <input type="checkbox"/> 01 Carbon Steel <input type="checkbox"/> 02 Stainless Steel <input type="checkbox"/> 03 Fiberglass <input type="checkbox"/> 04 Polyvinyl Chloride <input type="checkbox"/> 05 Concrete <input type="checkbox"/> 06 Aluminum<br><input type="checkbox"/> 07 Steel Clad <input type="checkbox"/> 08 Bronze <input type="checkbox"/> 09 Composite <input type="checkbox"/> 10 Non-metallic <input type="checkbox"/> 11 Earthen Walls<br><input type="checkbox"/> 12 Unknown <input type="checkbox"/> 13 Other _____ |  |



### Container Construction

|   |   |  |   |   |  |   |
|---|---|--|---|---|--|---|
| E | <input type="checkbox"/> 01 Rubber Lined      | <input type="checkbox"/> 02 Alkyd Lining   | <input type="checkbox"/> 03 Epoxy Lining        | <input type="checkbox"/> 04 Phenolic Lining | <input type="checkbox"/> 05 Glass Lining | <input type="checkbox"/> 06 Clay Lining |
|   | <input type="checkbox"/> 07 Unlined           | <input type="checkbox"/> 08 Unknown        | <input type="checkbox"/> 09 Other. _____        |   |  |   |
| F | <input type="checkbox"/> 01 Polyethylene Wrap | <input type="checkbox"/> 02 Vinyl Wrapping | <input type="checkbox"/> 03 Cathodic Protection |   |  |   |
|   | <input type="checkbox"/> 04 Unknown           | <input type="checkbox"/> 05 None           | <input type="checkbox"/> 06 tar or asphalt      | <input type="checkbox"/> 09 Other           |  |   |

### VI Piping

|                        |  |   |                                     |                                      |                                     |
|------------------------|--|---|-------------------------------------|--------------------------------------|-------------------------------------|
| A. Aboveground Piping: | <input type="checkbox"/> 01 Double-walled pipe       | <input type="checkbox"/> 02 Concrete-lined trench | <input type="checkbox"/> 03 Gravity | <input type="checkbox"/> 04 Pressure | <input type="checkbox"/> 05 Suction |
|                        | <input type="checkbox"/> (Check) appropriate box(es) |   | <input type="checkbox"/> 06 Unknown | <input type="checkbox"/> 07 None     |                                     |
| B. Underground Piping: | <input type="checkbox"/> 01 Double-walled pipe       | <input type="checkbox"/> 02 Concrete-lined trench | <input type="checkbox"/> 03 Gravity | <input type="checkbox"/> 04 Pressure | <input type="checkbox"/> 05 Suction |
|                        | <input type="checkbox"/> (Check) appropriate box(es) |   | <input type="checkbox"/> 06 Unknown | <input type="checkbox"/> 07 None     |                                     |

### VII Leak Detection

|   |   |   |   |   |
|---|---|---|---|---|
| <input type="checkbox"/> 01 Visual                        | <input type="checkbox"/> 02 Stock Inventory | <input type="checkbox"/> 03 Tile Drain          | <input type="checkbox"/> 04 Vapor Sniff Wells | <input type="checkbox"/> 05 Sensor Instrument |
| <input type="checkbox"/> 06 Ground Water Monitoring Wells | <input type="checkbox"/> 07 Pressure Test   | <input type="checkbox"/> 08 Internal Inspection | <input type="checkbox"/> 09 None              |   |
| <input type="checkbox"/> 10 Other. _____                  |   |   |   |   |

### VIII Chemical Composition of Materials Currently or Previously Stored in Underground Containers

If you checked yes to IV-F you are not required to complete this section.

| currently stored            | previously stored           | CAS # (if known) | Chemical Do Not Use Commercial Name Use additional paper for more room |
|-----------------------------|-----------------------------|------------------|--|
| <input type="checkbox"/> 01 | <input type="checkbox"/> 02 |                  |  |
| <input type="checkbox"/> 01 | <input type="checkbox"/> 02 |                  |  |
| <input type="checkbox"/> 01 | <input type="checkbox"/> 02 |                  |  |

|   |                                 |                                |
|---|---------------------------------|--------------------------------|
| Is Container located on an Agricultural Farm? | <input type="checkbox"/> 01 Yes | <input type="checkbox"/> 02 No |
|---|---------------------------------|--------------------------------|

|                           |                   |
|---------------------------|-------------------|
| Person Filing (Signature) | Phone w/area code |
|---------------------------|-------------------|

### For Local Agency Use Only

|                                  |                      |                   |                   |
|----------------------------------|----------------------|-------------------|-------------------|
| AGENCY NAME                      |                      | CITY              | COUNTY            |
| CONTACT PERSON                   |                      | PHONE W/AREA CODE |                   |
| INSPECTION DATE (1ST INSPECTION) | PERMIT APPROVAL DATE |                   | PERMIT ID. NUMBER |

### FOR STATE USE ONLY

|                  |                             |                             |                             |
|------------------|-----------------------------|-----------------------------|-----------------------------|
| STATE ID. NUMBER |                             | Accounting Number           | County Number               |
| Date Received    | <input type="checkbox"/> 01 | <input type="checkbox"/> 02 | <input type="checkbox"/> 03 |

APPENDIX C

Standard Form 399 Submitted to  
Department of Finance on August 10, 1984

## STATE ADMINISTRATIVE MANUAL

## BUDGETING

## FISCAL IMPACT STATEMENT (REGULATIONS AND ORDERS)

STD 200 (NEW 7-81)

SEE S A M SECTION 6055 FOR INSTRUCTIONS



STATE OF CALIFORNIA

|   |                                    |                        |
|---|------------------------------------|------------------------|
| AGENCY<br>Water Resources Control Board | CONTACT PERSON<br>Stephen Fagundes | PHONE NUMBER<br>4-1258 |
|---|------------------------------------|------------------------|

## TITLE / DESCRIPTION OF REGULATION/ORDER

CAC Title 23, Chapter 3, Water Resources Control Board, Subchapter 16

## A. FISCAL EFFECT ON LOCAL GOVERNMENT (Indicate appropriate boxes 1 through 5 and complete if necessary)

- ☒ 1. Additional expenditures of approximately \$ See Attachment 1 annually which are reimbursable by the State pursuant to Section 2231 of the Revenue and Taxation Code. Funding for this reimbursement:
- ☐ a. is provided in (Item \_\_\_\_\_, Budget Act of \_\_\_\_\_) or (Chapter \_\_\_\_\_, Statutes of \_\_\_\_\_)
- ☒ b. will be requested in the 1985-86 Governor's Budget for appropriation in Budget Act of 1985 (FISCAL YEAR)
- ☐ 2. Additional expenditures of approximately \$ \_\_\_\_\_ annually which are not reimbursable by the State pursuant to Section 2231 of the Revenue and Taxation Code because this regulation:
- ☐ a. implements the Federal mandate contained in \_\_\_\_\_;
- ☐ b. implements the court mandate set forth by the \_\_\_\_\_ court in the case of \_\_\_\_\_ vs. \_\_\_\_\_;
- ☐ c. implements a mandate of the people of this State expressed in their approval of Proposition No. \_\_\_\_\_ at the \_\_\_\_\_ election;
- ☐ d. is issued only in response to a specific request from the \_\_\_\_\_, which are the only local entity(ies) affected;
- ☐ e. is more appropriately financed from the \_\_\_\_\_ (FEE, REVENUE, ETC.) authorized by Section \_\_\_\_\_ of the \_\_\_\_\_ Code;
- ☐ f. provides for savings to each affected unit of local government which will, at a minimum, offset any additional costs to each such unit.
- ☐ 3. Savings of approximately \$ \_\_\_\_\_ annually.
- ☐ 4. No additional costs or savings because this regulation makes only technical, nonsubstantive or clarifying changes to current law and regulations.
- ☐ 5. No fiscal impact exists because this regulation does not affect any local entity or program.

## B. FISCAL EFFECT ON STATE GOVERNMENT (Indicate appropriate boxes 1 through 3 and complete if necessary)

- ☒ 1. Additional expenditures of approximately \$ See Attachment 1 annually. It is anticipated that State agencies will:
- ☒ a. be able to absorb these additional costs within their existing budgets and resources.
- ☒ b. request supplemental funding by means of "Budget Change Proposals" for the \_\_\_\_\_ fiscal year.
- ☐ 2. Savings of approximately \$ \_\_\_\_\_ annually.
- ☐ 3. No fiscal impact exists because this regulation does not affect any State agency or program.

## C. FISCAL EFFECT ON FEDERAL FUNDING OF STATE PROGRAMS (Indicate appropriate boxes 1 through 3)

- ☐ 1. Additional expenditures of approximately \$ \_\_\_\_\_ annually.
- ☐ 2. Savings of approximately \$ \_\_\_\_\_ annually.
- ☐ 3. No fiscal impact exists because this regulation does not affect any federally-funded State program or agency.

|  |                             |
|--|-----------------------------|
| SIGNATURE<br>                            | TITLE<br>Executive Director |
| DEPT. OF FINANCE<br>APPROVAL/CONCURRENCE | DATE<br>August 10, 1984     |

Local Government

The Fiscal Impact Statement estimates the initial cost of compliance to the program for local government owned underground tanks at \$41 million and an ongoing (annual) cost of \$16 million per year. The Board estimates that even though program compliance is mandated by January 1, 1985, it will probably take five years before all monitoring systems are in place and the program is fully operational. Based on these figures locals should spend about \$11.4 million the first year of implementation, increasing to \$24.2 million during the fifth year. These figures may need to be adjusted on a year-by-year basis upon determination of the actual implementation rate.

|                     | <u>INITIAL COST</u> | <u>PER YEAR</u> |   | <u>ANNUAL COST</u> | <u>PERCENTAGE<br/>OF<br/>PROGRAM<br/>ONBOARD</u> |   |                |
|---------------------|---------------------|-----------------|---|--------------------|--|---|----------------|
| 1st year            | (\$41 million       | x 1/5)          | + | (\$16 million      | x 1/5)   | = | \$11.4 million |
| 2nd year            | (\$41 million       | x 1/5)          | + | (\$16 million      | x 2/5)   | = | \$14.6 million |
| 3rd year            | (\$41 million       | x 1/5)          | + | (\$16 million      | x 3/5)   | = | \$17.8 million |
| 4th year            | (\$41 million       | x 1/5)          | + | (\$16 million      | x 4/5)   | = | \$21.0 million |
| 5th year            | (\$41 million       | x 1/5)          | + | (\$16 million      | x 5/5)   | = | \$24.2 million |
| Annually thereafter |                     |                 |   |                    |  | = | \$16.0 million |

State Government

The Fiscal Impact Statement estimates the initial cost of compliance to the program for State owned underground tanks at \$19 million and an ongoing (annual) cost of \$7 million per year. Funding for these costs can be addressed during the normal budget process as it is not critical to the regulation approval process. When funding for these costs is addressed we may want to consider the issuance of a Budget Letter which would allow for a more coordinated effort.

|                     | <u>INITIAL COST</u> | <u>PER YEAR</u> |   | <u>ANNUAL COST</u> | <u>PERCENTAGE<br/>OF<br/>PROGRAM<br/>ONBOARD</u> |   |                |
|---------------------|---------------------|-----------------|---|--------------------|--|---|----------------|
| 1st year            | (\$19 million       | x 1/5)          | + | (\$7 million       | x 1/5)   | = | \$5.2 million  |
| 2nd year            | (\$19 million       | x 1/5)          | + | (\$7 million       | x 2/5)   | = | \$6.6 million  |
| 3rd year            | (\$19 million       | x 1/5)          | + | (\$7 million       | x 3/5)   | = | \$7.8 million  |
| 4th year            | (\$19 million       | x 1/5)          | + | (\$7 million       | x 4/5)   | = | \$9.0 million  |
| 5th year            | (\$19 million       | x 1/5)          | + | (\$7 million       | x 5/5)   | = | \$10.2 million |
| Annually thereafter |                     |                 |   |                    |  | = | \$7.0 million  |

REFERENCES FOR FISCAL IMPACT STATEMENT

- 1) State Water Resources Control Board. "State Water Resources Control Board: Underground Tank Program Administrating Public Agency, Computer Printout", January 15, 1985.
- 2) Eu, March Fong (Secretary of State). 1981-1982 California Roster, 1983.
- 3) State Water Resources Control Board. "Estimate of Number of Tanks in California Subject to Assembly Bill 1362", January 1985.
- 4) State Water Resources Control Board. "Summary of Existing Underground Storage Tanks at State Owned Facilities", August 1984.
- 5) State Water Resources Control Board. "Summary of Existing Underground Storage Tanks at Selected Local Government Facilities in California", August 1984.
- 6) State Water Resources Control Board. "Summary of Existing Underground Storage Tanks at Selected School District Facilities in California", August 1984.

- 7) Personal Communication with Linda Jolly, of the State Department of Education, Data Aquisition Division, Sacramento, CA, August 14, 1984.
- 8) Personal Communication with Lance Yagi, of California Community Colleges, Analytical Studies Division, Sacramento, CA, August 14, 1984.
- 9) Personal Communication with Paul Robinson, of Owens-Corning Fiberglass, Non-Corrosive Products Division, South San Francisco, CA, August 14, 1984.
- 10) Personal Communication with Scott Zabish, of Perkins Welding Works, Sacramento, CA, August 13, 1984.
- 11) Personal Communication with Roy Henderson, of Stockton Service Station Equipment Company, Stockton, CA, August 10, 1984.
- 12) Personal Communication with Dennis Parikka, of Fillner Construction Company, Sacramento, CA, August 10, 1984.
- 13) Personal Communication with Mo Balian, of Town and Country Contractors, Inc., Sacramento, CA, August 16, 1984.
- 14) Personal Communication with Edward Reicin, of MPC Containment Company, Chicago, Illinois, June 13, 1984.

- 15) Personal Communication with Hugh Peters, of Pollulert Systems, Mallory Components Group, Indianapolis, Indiana and John Bernal, of Pollulert Systems, Sunnyvale, CA, August 16, 1984.
- 16) Data Provided by R. L. Hartung of Chevron U.S.A. Inc., San Francisco, CA, in a letter to Mr. Harold Singer dated October 23, 1984, and Personal Communication with Chris Havens, of Wickland Oil Company, Sacramento, CA, January 1985.
- 17) Personal Communication with Joyce Rizzo, of Hunter Environmental Services, Inc., Malvern, PA, August 10, 1984.
- 18) Personal Communication with Nick Chronis, of Triangle Inc., Sacramento, CA, August 10, 1984.
- 19) Testimony provided by Robert Short of Goodrich Oil Company, October 23 and November 27, 1984.
- 20) Personal Communication with Robert Clark, of All Terrain Exploration Drilling, Roseville, CA, January 14, 1985.
- 21) State Water Resources Control Board. "Underground Tank Project, Percentage Breakdown of Tanks, Computer Printout", January 17, 1985.

- 22) Personal communication with Charley Soderquist, of California Analytical Labs, Inc., West Sacramento, January 10, 1985.
- 23) Personal communication with Mike Bouton, of Genel Co., Dallas, TX, January 10, 1985.
- 24) Personal communication with John Dablow III, of Hydro-Fluent, Inc., Anaheim, CA, January 14, 1985.
- 25) Personal communication with Lorne Everett, of Kaman Tempo, Santa Barbara, CA, January 8, 1985.
- 26) Personal communication with Dr. Mark Collins, of Photovac, Inc., Thornhill, Ontario, Canada, January 11, 1985.
- 27) State Department of Water Resources. Bulletin No. 130-75, Hydrologic Data: 1975 Volume I: North Coastal Area, May, 1977.
- 28) State Department of Water Resources. Bulletin No. 130-75, Hydrologic Data: 1975 Volume II: Northeastern California, May, 1977.
- 29) State Department of Water Resources. Bulletin No. 130-75, Hydrologic Data: 1975 Volume III: Central Coastal Area, February, 1977.



- 30) State Department of Water Resources. Bulletin No. 130-75,  
Hydrologic Data: 1975 Volume IV: San Joaquin Valley, October,  
1976.
- 31) State Department of Water Resources. Bulletin No. 130-75,  
Hydrologic Data: 1975 Volume V: Southern California, March,  
1977.
- 32) State Water Resources Control Board. "Summary of Fee  
Structure for Permitting and Annual Inspection of Underground  
Storage Tanks by Selected Local Agencies", August, 1984.

## D. Chronological List of Commenters

CHRONOLOGICAL LIST OF COMMENTERS  
SUBCHAPTER 16 COMMENTS  
(\* = Testimony)

1. Tulare County Department of Health Services  
a) 06/25/84 J. W. Johnson  
b) 11/29/84 Donald A. Johnson
2. Morse Standard, Inc.  
a) 08/03/84 George Baker  
b) 10/10/84 J. W. Morse
3. Evergreen Program  
08/13/84 Agnes Sullivan
4. City of San Jose  
a) 08/30/84 Peter W. Jones  
b) 10/01/84 Peter W. Jones  
c) 12/14/84 Peter W. Jones
5. Fredericks Hansen Paint Company  
09/06/84 Philip C. Bremenstuh1
6. Valley Leak Detection  
09/06/84 Rex H. Black
7. W. B. Distributors  
09/06/84 Clair B. Black
8. NI Industries, Inc.  
a) 09/24/84 Don L. Hedges  
b) 09/25/84 David L. Hirsh
9. California Conference of Directors of Environmental Health  
a) 09/27/84 Donald W. Koepp  
b) 12/10/84 Donald W. Koepp
10. The Marley Pump Company  
a) 06/06/84 C. C. Franklin  
b) 09/28/84 C. C. Franklin
11. Woodward-Clyde Consultants  
a) 10/01/84 James D. Hartley  
b) 05/22/85 David W. Parson
12. Kaiser Sand & Gravel Company  
a) 10/01/84 Lawrence W. Appleton  
b) 01/17/85 Lawrence W. Appleton

13. Blue Diamond Materials  
09/26/84 R. R. Munro
14. San Diego County Department of Health Services
  - a) 09/27/84 Gary Stephany
  - b) 10/22/84 Gary Stephany
  - c) 11/21/84 Gary Stephany
15. National Car Rental
  - a) 10/02/84 Mary Carroll Wahl
  - b) 01/14/85 Brian Anthony
16. Mac Adam International, Inc.  
10/04/84 William MacAdam
17. Darling Oil & Tire  
10/05/84 Richard A. Darling
18. George Hatfield's Services  
10/08/84 George Hatfield
19. Nicholas, James F.  
10/08/84 James Nicholas
20. California Target Enterprises, Inc.
  - a) 10/09/84 Robert L. French
  - b) 10/23/84 Robert L. French
21. Haase
  - a) 10/02/84 Kurt Hennighausen
  - b) 05/23/85 Kurt Hennighausen
22. Joor Manufacturing, Inc.
  - a) 10/10/84 Howard Robbins
  - b) 11/27/84\* Howard Robbins
  - c) 11/30/84 Howard Robbins
  - d) 01/11/85 Howard Robbins
23. Valley Oil Distributing  
10/12/84 Raymond C. Inman
24. Dixie Enterprises  
10/15/84 Fred Y. Bunch

25. National Association of Corrosion Engineers (NACE)  
a) 09/22/84 William R. Stead  
b) 10/23/84\* William R. Stead  
c) 11/26/84 William R. Stead  
d) 11/27/84\* William R. Stead  
e) 12/14/84 William R. Stead  
f) 01/14/85 William R. Stead
26. Owens/Corning Fiberglas Corporation  
a) 10/16/84 Edward C. Nieshoff  
b) 10/22/84 Edward C. Nieshoff  
c) 10/22/84 Edward C. Nieshoff  
d) 10/22/84 Edward C. Nieshoff  
e) 10/22/84 Edward C. Nieshoff  
f) 01/17/85 Edward C. Nieshoff
27. Boise-Cascade  
a) 10/05/84 Bill Williams  
b) 10/19/84 Richard N. Nachbar
28. Kerr-McGee Chemical Corporation  
10/09/84 J. A. Smith
29. Krazan & Associates  
10/10/84 Frank L. Horat
30. Mercedes-Benz Service & Parts Managers Club,  
Los Angeles Zone  
10/11/84 Rick Blakemore
31. Lloyd Pest Control  
10/11/84 Herbert C. Field
32. San Diego Petroleum Corporation  
10/11/84 Tim DeWan
33. Stinnes-Western Chemical Corporation  
10/11/84 Fred W. Cluff
34. California State Department of Transportation  
Division of Project Development  
Office of Structures Design  
10/12/84 R. T. Fuller
35. Buford Oil Company  
10/15/84 William E. Buford

36. Hedborg Associates, Inc.  
10/15/84 C. E. Hedborg
37. Shell California Production, Inc.  
a) 10/15/84 J. E. Dozier, Jr.  
b) 10/23/84\* Gerry Hagy  
c) 11/26/84 Joe E. Dozier, Jr./Raymond E. Ouellette  
d) 11/27/84\* G. S. Hagy  
e) 11/21/84 G. S. Hagy  
f) 05/24/85 K. E. Smith
38. Southwest Tank Liners  
a) 10/15/84 J. R. Sessions  
b) 10/23/84\* Bob Meacham  
c) 11/27/84\* Bob Meacham  
d) 11/27/84\* Fred Naglestad  
e) 12/03/84 Bob Meacham  
f) 01/10/85 Bob Meacham  
g) 01/18/85\* Fred Naglestad  
h) 01/18/85\* Bob Meacham
39. Encinitas Car Wash  
10/15/84 John T. O'Der
40. Lee's Honda-Kawasaki  
10/16/84 Dean Lee
41. Central and West Basin-Water Replenishment District  
10/19/84 John G. Joham, Jr.
42. Professional Services Group, Inc.  
Corrosion Engineering Division  
10/16/84 Donald M. Waters, P.E.
43. Executive Wings, Inc.  
10/16/84 Ron Weidman
44. Diversified Distributors  
10/17/84 Dave Jensen
45. Boone's Wholesale, Inc.  
10/17/84 Fred Boone
46. Dublin San Ramon Services District  
10/17/84 Daniel F. Murphy
47. John's Exxon & Mini-Mart  
10/16/84 Mr. & Mrs. Gary Silveria

48. Energy Petroleum  
10/18/84 Peter W. Smith
49. Tom's Sierra Company, Inc.  
10/18/84 L. R. Stillson
50. County of Sacramento - Health Department  
10/19/84 Robert Knight/Carl W. Overmier
51. Schutzky Distributors, Inc. (Chevron)  
dba Bay Cities Oil Marketers  
10/19/84 Victor S. Schutzky
52. Assemblyman Jim Costa  
10/22/84 Jim Costa
53. Chevron U.S.A., Inc.  
10/23/84 R. L. Hartung
54. Modern Welding Co.  
a) 10/23/84 Richard J. Reisz  
b) 01/18/85 Richard J. Reisz  
c) 01/18/85\* Richard J. Reisz
55. Advanced Industrial Designs, Inc.  
a) 10/22/84 Reinhard Hanselka  
b) 10/23/84\* Reinhard Hanselka
56. California Cattlemen's Association  
10/22/84 Leo L. Johnson
57. McCloud River Railroad Company  
10/19/84 B. Ferraris
58. Squaw Valley Motor Hotel & Trailer Park  
10/19/84 B. Ferraris
59. Phoenix & Son Garage & Storage Co.  
10/18/84 H. E. Phoenix, Jr.
60. Loomis Armored Car Services, Inc.  
10/19/84 Jan Marie Vasquez
61. Glenn T. Robinson, Inc.  
10/19/84 J. L. Salini
62. Neu Bros. Grading & Paving  
10/18/84 Daniel R. Henderson

- 63. Silmar  
10/18/84 Gregory P. Martin
- 64. Reliable Transportation, Inc.  
10/18/84 Arthur F. LaLonde
- 65. J. B. Dewar, Inc.  
10/17/84 Jack DeWar
- 66. Poma Distributing Co., Inc.  
10/18/84 G. S. Poma
- 67. Pence Petroleum Co.  
10/19/84 Charles Pence
- 68. Engine Research Company (ERC)  
a) 10/12/84 Richard F. Gold  
b) 01/04/85 Richard F. Gold
- 69. Taxicab Paratransit  
10/22/84 Jim Steele
- 70. Henneman, Kenneth R., Consulting Engineer  
a) 10/17/84 Kenneth R. Henneman  
b) 11/19/84 Kenneth R. Henneman
- 71. California Fuels  
a) 10/17/84 L. J. Atwater  
b) 01/15/85 L. J. Atwater
- 72. Redding Oil Co.  
10/17/84 Jack Reiser
- 73. Cressey Beverage Distributing  
10/16/84 Gary R. Cressey
- 74. Serve Yourself & Multiple Pump Association, Inc.  
10/17/84 Paul T. Erdos
- 75. Armour Oil Company  
10/17/84 R. E. Andrews
- 76. Regional Council of Rural Counties  
10/22/84 Les H. Cohen
- 77. San Diego County Board of Supervisors  
10/19/84 Tom Hamilton



78. Public Policy Advocates  
a) 10/22/84 Frederick J. Taugher  
b) 11/16/84 Frederick J. Taugher  
c) 01/18/85 Frederick J. Taugher
79. Van Gas  
10/22/84 Van Gas
80. Madera County  
a) 10/16/84 Gail McIntyre (Board of Supervisors)  
b) 10/17/84 David W. Fishel (Environmental Health Dept.)  
c) 11/26/84 David W. Fishel (Environmental Health Dept.)
81. The Greyhound Corporation  
10/19/84 H. D. Rosoff
82. Updike, Kelly & Spellacy, P.C.  
(for Veeder Root)  
10/19/84 Elizabeth Collins Barton
83. Assemblyman Norman Waters  
a) 10/22/84 Norman Waters  
b) 12/10/84 Norman Waters
84. Central Valley Rock, Sand & Gravel Association, Inc.  
a) 10/19/84 Ray B. Hunter  
b) 10/23/84\* Margaret Allender
85. California Rental Association  
a) 10/19/84 Ray B. Hunter  
b) 10/23/84\* Margaret Allender  
c) 11/26/84 Ray B. Hunter  
d) 11/27/84\* Margaret Allender  
e) 01/18/85 Ray B. Hunter  
f) 01/18/85\* Margaret Allender  
g) 05/28/85 Ray B. Hunter
86. National Paint & Coatings Association  
a) 10/19/84 Robert J. Nelson  
b) 10/23/84 Kenneth Flaks  
c) 10/23/84\* Kenneth Flaks

87. Western Oil & Gas Association  
a) 10/22/84 Robert N. Harrison  
b) 10/23/84\* Gerry Hagy  
c) 10/23/84\* Pat Dennis  
d) 10/23/84\* Dave Draney  
e) 10/23/84\* Eric Lappala  
f) 11/27/84\* Gerry Hagy  
g) 11/21/84 Robert N. Harrison  
h) 01/17/85 Robert N. Harrison  
i) 01/18/85\* Gerry Hagy  
j) 05/29/85 Robert N. Harrison
88. California State Department of Developmental Services  
Hospital Operations Division (memorandum)  
10/22/84 Mike Koester
89. Sacramento County Department of Public Works  
10/22/84 Leonard Rea
90. Wickland Oil Company  
a) 10/23/84 Richard R. Gray  
b) 10/23/84\* Richard R. Gray  
c) 11/27/84 Daniel E. Hall  
d) 11/27/84\* Daniel E. Hall  
e) 01/18/85 Richard R. Gray  
f) 01/18/85\* Richard R. Gray
91. Metropolitan Water District of Southern California  
a) 10/23/84 Carl Boronkay  
b) 11/26/84 W. E. Risner  
c) 01/16/85 Carl Boronkay
92. Beacon Oil Company  
10/22/84 D. E. Bacigalupo
93. Fresno County Department of Health  
a) 10/22/84 Lynn E. Johnson  
b) 11/27/84\* Larry Oberti
94. McCormix Corporation  
a) 10/23/84 Bert W. McCormack  
b) 10/23/84\* Bert W. McCormack  
c) 11/27/84\* Bert W. McCormack  
d) 01/18/85\* Bert W. McCormack  
e) 01/18/85 handout
95. Avanti Management, Inc.  
a) 10/23/84 J.W. Colin  
b) 10/23/84\* J.W. Colin

96. Aerojet General  
10/23/84 C. Hugh Thompson
97. Chemical Industry Council of California  
a) 10/23/84 Richard L. Davis  
b) 10/23/84\* Richard (Dick) Davis  
c) 11/26/84\* Richard L. Davis  
d) 11/26/84\* Richard L. Davis  
e) 01/17/85 Richard L. Davis
98. California League of Food Processors  
a) 10/23/84 E. D. Yates  
b) 11/27/84 E. D. Yates  
c) 11/27/84\* E. D. Yates  
d) 01/17/85 E. D. Yates  
e) 01/18/85\* E. D. Yates
99. Leighton and Associates, Inc.  
10/22/84 Thomas E. Mills
100. Shuster Oil  
a) 10/23/84 Bob Shuster  
b) 10/23/84\* Bob Shuster  
c) 11/27/84\* Bob Shuster  
d) 01/18/85 Bob Shuster  
e) 01/18/85\* Bob Shuster
101. Advocation, Inc.  
10/23/84 Donald K. Brown
102. California Independent Oil Marketers Association  
a) 10/23/84 Richard J. Zipp/Rusty Rinehart  
b) 10/23/84\* Tom Robinson  
c) 10/23/84\* Richard Zipp  
d) 10/23/84\* Leroy Nieder  
e) 11/27/84 Tom Robinson  
f) 11/27/84\* Tom Robinson  
g) 11/27/84\* Michael Bonkowski  
h) 11/27/84\* Richard Zipp  
i) 11/27/84 (Handout)  
j) 11/27/84 Devine/Robinson/Zipp/Nieder/Bonkowski/Rinehart  
k) 01/18/85 Thomas L. Robinson/Michael S. Bonkowski  
l) 01/18/85\* Tom Robinson  
m) 01/18/85\* handout  
n) 05/29/85 Ron Ahlport
103. Robert V. Jensen, Inc.  
10/22/84 Michael A. Martin

104. California Council For Environmental and Economic Balance  
a) 10/22/84 John A. Cupps  
b) 11/26/84 John A. Cupps  
c) 11/27/84\* John A. Cupps  
d) 01/14/85 John A. Cupps
105. R. A. Peterson  
10/23/84 R. A. Peterson
106. Hunt & Sons  
10/22/84 Warren N. Hunt, Jr.
107. D. W. Petroleum, Inc.  
10/22/84 R. Dean Hunt
108. Sullivans Standard Petroleum Company  
10/22/84 Timothy P. Sullivan
109. (City of) Los Angeles, Department of Water & Power  
a) 10/23/84 Paul H. Lane  
b) 10/23/84\* Wayne Kruse
110. American Electronics Association  
10/19/84 Steven W. Pederson
111. California Fire Chiefs Association, Northern Division  
Fire Prevention Officers Association  
a) 10/16/84 Robert Cleveland  
b) 11/26/84 Robert Cleveland
112. Sacramento Municipal Utility District (SMUD)  
10/23/84 J. D. Stack
113. Southern California Edison Company  
a) 10/23/84 Byron J. Mechalias  
b) 10/23/84\* Frank Melone  
c) 10/23/84\* Wendall Suyama  
d) 11/26/84 Byron J. Mechalias  
e) 01/17/85 Edward J. Faeder
114. Pacific Gas and Electric Company  
10/22/84 H. M. Howe/G. McKenzie
115. Genelco  
a) 10/17/84 Michael Bouton  
b) 10/23/84 (no cover letter)  
c) 10/23/84\* Michael Bouton  
d) 11/27/84\* John Knox  
e) 01/18/85\* Frank Winston  
f) 01/18/85\* James Levine

116. Santa Clara County Fire Chiefs' Association  
a) 10/19/84 Dan Heiser  
b) 11/26/84 L. B. Hankinson  
c) 01/17/85 Dan Heiser  
d) 01/18/85\* Larry Minet
117. Los Angeles County, Department of County  
Engineer Facilities  
a) 10/22/84 Stephen J. Koonce/Kenneth R. Kvammen  
b) 10/23/84\* Carl Sjoberg  
c) 01/16/85 Kenneth R. Kvammen
118. Building Owners and Managers Association of San Francisco  
a) 10/22/84 Marc Intermaggio  
b) 11/20/84 Edward Zelinsky
119. General Telephone Company of California  
10/22/84 M. H. Schmidt
120. San Bernardino County Environmental Health Services  
Environmental Public Works Agency  
10/22/84 Richard L. Roberts, R.S.M.P.H./  
Jim E. Smith, R.S.
121. Oakland Scavenger Company  
10/23/84 John S. Sheahan
122. Santa Clara Valley Water District  
a) 10/22/84 John T. O'Halloran  
b) 12/18/84 John T. O'Halloran
123. National Cottonseed Products Association  
a) 10/23/84 Tom C. Wedegaertner  
b) 10/23/84\* Tom C. Wedegaertner  
c) 11/21/84 Tom C. Wedegaertner
124. Southland Corporation (7-Eleven)  
a) 10/22/84 Bob Johnson  
b) 10/23/84\* Bob Johnson
125. Atlantic Richfield Company (ARCO)  
a) 10/19/84 F. N. Fletcher  
b) 10/23/84\* Noel Fletcher  
c) 11/27/84\* F. Noel Fletcher  
d) 11/26/84 Noel Fletcher  
e) 01/04/85 R. Walter Simmons

126. California Cotton Ginners Associaton
  - a) 10/23/84 None
  - b) 11/27/84 George Soares
  - c) 11/27/84\* George Soares
127. California Forest Protective Association
  - a) 10/23/84 Matt R. Anderson
  - b) 11/26/84 Matt R. Anderson
128. Miller Redwood Company
  - 10/22/84 Sheal L. Anderson
129. California Grain & Feed Association
  - 10/23/84 Paul Stephany
130. Woolsey Oil, Inc.
  - 10/22/84 Bruce Woolsey
131. L & M Petroleum Distributors
  - 10/22/84 Durrel Woolsey
132. Pest Control Operators of California, Inc.
  - 10/23/84 Harvey L. Logan
133. Florin Fire Protection District
  - 10/23/84 Curt Grieve
134. Associated General Contractors of California
  - 10/23/84 J. B. Earl/Dan McGrew
135. California Carwash Association
  - a) 10/17/84 Armando Figaroa
  - b) 10/23/84\* Armando Figaroa
136. Diablo Petroleum
  - a) 10/09/84 Richard Fahey
  - b) 10/23/84\* Richard Fahey
  - c) 11/27/84\* Richard Fahey
  - d) 11/21/84 Richard Fahey
  - e) 01/15/85 Richard Fahey
137. Can Manufacturers Institute
  - 10/23/84 George D. Payne
138. Union Oil Company of California
  - a) 10/23/84 Patricia M. O'Toole
  - b) 11/26/84 Patricia M. O'Toole
  - c) 01/17/85 Patricia M. O'Toole

139. California Manufacturers Association  
a) 10/23/84 Hank Martin  
b) 10/23/84\* Hank Martin  
c) 11/27/84 Hank Martin
140. Southern California Gas Company  
a) 10/22/84 Paul Goodson  
b) 11/26/84 Paul Goodson  
c) 01/18/85 Paul Goodson
141. Metal Finishing Association of Southern California, Inc.  
10/19/84 William D. Wiggins
142. Setliff Bros.  
a) 10/20/84 Ernest Setliff  
b) 12/29/84 Ernest Setliff
143. Sav'n Sam's Service Stations  
10/22/84 Sam H. Gailbreath
144. Foothills Oil Company, Inc.  
10/22/84 Ronald Bailey
145. Properties Unlimited, Inc.  
10/18/84 Hal Moi
146. Poly Lux  
10/19/84 Betty Ann Angulo
147. Hertz  
10/22/84 Paul H. Woods, Jr.
148. Cambridge Engineering, Inc.  
10/19/84 James. W. Healy
149. Los Angeles Independent Station Owner  
10/23/84 Ricardo Mendoza
150. Royal Petroleum Company  
10/19/84 Harold Mahoney
151. Products Research & Chemical Corporation  
a) 10/18/84 Melvin B. Young  
b) 11/26/84 Melvin B. Young  
c) 01/09/85 Melvin B. Young
152. OPW Fueling Components Group  
(A Dover Corporation)  
10/19/84 Glenn E. Moore

153. Agricultural Council of California  
10/23/84 (none)
154. Shute, Mihaly & Weinberger, MRC Container  
10/23/84 Marc B. Mihaly
155. Thrifty Oil  
a) 10/22/84 John E. Elgin  
b) 10/23/84 Robert T. Flesh  
c) 01/17/85 John E. Elgin
156. Safeway Stores  
a) 10/23/84 Michael Chan  
b) 10/23/84 Michael Chan
157. J. A. Fisher, Inc.  
10/23/84 J. A. Fisher
158. Sierra Drilling Company  
10/23/84 Paul Pierson
159. Assemblyman Byron D. Sher  
a) 10/23/84\* Kip Lipper  
b) 11/26/84 Byron D. Sher  
c) 11/27/84\* Kip Lipper  
d) 11/27/84 Byron D. Sher
160. Goodrich Oil Co.  
a) 10/23/84\* Robert Short  
b) 11/27/84\* Robert Short
161. GeoSec  
10/23/84\* Rick Jirsa
162. El Dorado County Environmental Health Department  
a) 10/23/84\* Ron Duncan  
b) 11/27/84\* Ron Duncan
163. California Service Station Council  
a) 10/23/84\* Jim Campbell  
b) 10/23/84\* Fred Naglestad  
c) 11/27/84\* Jim Campbell  
d) 11/27/84\* Fred Naglestad  
e) 01/18/84\* Fred Naglestad  
f) 01/18/84\* Jim Campbell
164. Kern County Health Department  
10/23/84\* Richard Casagrande



165. California Municipal Utilities Association  
11/27/84 Ron Davis
166. U.S. Department of the Air Force  
11/26/84 Phillip E. Lammi
167. Hewlett-Packard  
11/21/84 Glenn Affleck
168. Regional Water Quality Control Board, Santa Ana Region  
a) 11/21/84 James W. Anderson  
b) 01/11/85 James W. Anderson
169. Senator Kenneth L. Maddy  
a) 11/20/84 Kenneth L. Maddy  
b) 11/27/84 Kenneth L. Maddy  
c) 11/28/84 Kenneth L. Maddy  
d) 12/06/84 Kenneth L. Maddy  
e) 01/14/85 Kenneth L. Maddy
170. Baggie Farms, Inc.  
11/09/84 George Bagdasarian
171. Byron Jackson Pump Division  
11/14/84 George M. Drake
172. Helen L. Hawley  
11/15/84 Helen L. Hawley
173. K. D. Caillier  
11/26/84 K. D. Caillier
174. Ventura County Environmental Health Department  
11/26/84 Don Koepp
175. Weyerhaeuser Company  
11/15/84 Dan M. Morgan
176. San Bernardino County Board of Supervisors  
10/29/84 Fazle Rab Quadri (received 11/26/84)
177. Geo Research  
11/19/84 Michael M. Mooradian
178. John R. Bell, General Contractor  
11/20/84 John R. Bell
179. Fig Garden  
11/16/84 Gordon T. Knott

- 180. H. P. Metzler & Sons  
11/21/84 Dennis K. Metzler
- 181. Wonder Valley Ranch Resort  
11/20/84 Jerrold Siegel
- 182. Kovac Equipment Company  
11/16/84 Phillip Terry
- 183. Pacific Telesis  
11/26/84 Thomas Mouton
- 184. Building Owners and Managers Association (BOMA)  
Oakland/East Bay  
10/31/84 George E. Valentine
- 185. Landells Aviation  
11/30/84 G. D. Landells
- 186. Arthur & Jean Steffensen, CPA  
11/19/84 Jean Steffensen
- 187. California Society of Professional Engineers  
11/29/84 George Hanna, Jr.
- 188. Exxon Company, U.S.A.  
a) 11/21/84 S. D. Curran (received 12/12/84)  
b) 01/16/85 S. D. Curran
- 189. Union Oil (Redding District)  
12/06/84 Nick Porter
- 190. Les H. Cohen & Associates  
11/30/84 Les H. Cohen
- 191. Modoc County Board of Supervisors  
a) 10/22/84 Lesley J. Chace  
b) 05/18/84 Lesley J. Chace
- 192. Gentz Construction Company  
11/26/84 John Gentz
- 193. Hydro-fluent, Inc.  
12/12/84 Grayson R. Walker/John F. Dablow III
- 194. Mesa Distributing Co., Inc.  
12/20/84 Ron Cady
- 195. Solano County - Environmental Health Division  
12/14/84 Brian J. Zamora

196. Assemblyman Herger  
12/19/85 Wally Herger
197. Twin Cities Equipment Rental  
12/12/84 Brent Skousen
198. Senator Rose Ann Vuich  
12/21/84 Rose Ann Vuich
199. Research Consultant Consortium  
01/08/85 Frank Winston
200. Assemblyman Bradley  
01/17/85 Bill Bradley
201. Ross Andress  
01/18/85 Ross Andress
202. California State Department of Food & Agriculture  
01/16/85 Clare Berryhill
203. Tera Corporation  
a) 01/18/85 Donald G. McEdwards  
b) 01/18/85\* Donald G. McEdwards
204. SCS Engineers  
01/18/85 Robert P. Stearns
205. Kaemper Technology, Inc.  
01/05/85 Charles E. Kaemper
206. Siskiyou Co. Department of Agriculture  
01/15/85 Edmond W. Hale
207. Xerxes Corporation  
01/07/85 Rob Clapp
208. Santa Ana, City Fire Department  
01/04/85 William J. Reimer
209. Acorn Equipment  
12/18/85 Brett Fox
210. California Regional Water Quality  
Control Board - Central Valley Region  
01/14/85 W. H. Crooks
211. Santa Monica Area Chamber of Commerce  
01/11/85 Jerry Jackson

212. Extraneous Document Deleted

213. Marran Company  
05/20/85      Randy Hurst

214. Resource Development Services  
05/20/85      Ross Andress

## E. Underground storage tanks statutes

1. Chapter 6.7, Division 20,  
Health and Safety Code,  
effective September 23, 1983:  
Chapter 1046, Statutes of 1983  
(AB 1362, Sher)

72:31

**Assembly Bill No. 1362**

**CHAPTER 1046**

**An act to add Section 25150.1 to, and to add Chapter 6.7 (commencing with Section 25280) to Division 20 of, the Health and Safety Code, relating to hazardous substances.**

[Approved by Governor September 23, 1983. Filed with  
Secretary of State September 23, 1983.]

**LEGISLATIVE COUNSEL'S DIGEST**

**AB 1362, Sher. Hazardous substances: underground storage.**

(1) Existing law does not specifically regulate the storage of hazardous substances in underground tanks.

This bill would prohibit any person from owning or operating an underground storage tank used for the storage of hazardous materials without a permit to the owner from a local agency, which is defined as the department or office so designated by a county or a city, if the city assumes exclusive jurisdiction for enforcement of these provisions. The bill would define terms, including "hazardous substance," and would exclude from the definition of underground storage tank a tank used for the storage of hazardous substances used for the control of cattle parasites and subject to the supervision of the county agricultural commissioner, if certain determinations are made by the commissioner, a tank located on a farm and used to store motor vehicle fuel for a specified purpose, a tank used for aviation or motor vehicle fuel, located within one mile of a farm and used by a licensed pest control operator, and specified structures. The bill would require the State Water Resources Control Board to conduct a study concerning applying certain standards to all of these exempted tanks and structures by January 1, 1985.

The bill would require the State Department of Health Services to compile a master list of hazardous substances, and to make it available, as specified, by June 30, 1984, notwithstanding any other provision of law, including provisions concerning the Office of Administrative Law's regulatory review process. The bill would also authorize the department to revise this list in accordance with specified procedures.

The bill would require each county to implement these provisions and would authorize a county, or a city assuming local jurisdiction, to implement design and construction standards in addition to those specified in the bill. The bill would also authorize a county or city to implement a provision concerning tanks installed after January 1, 1984, until the board adopts specified regulations.

The bill would specify the conditions for transferring a permit, would specify the term of a permit to operate an underground storage tank as 5 years, and would prohibit a local agency from

issuing or renewing a permit if the local agency inspects the tank and determines that the underground storage tank does not comply with certain provisions. The bill would require that certain information be provided on the application for a permit by the owner of the tank and would also require the permittee to complete an annual report detailing any specified changes. The bill would impose certain procedures concerning the use of trade secrets. The bill would also require a permittee who stores a hazardous substance not listed on the application to apply for a new or amended permit within 30 days after commencing storage.

The bill would authorize a county, or city which assumes exclusive jurisdiction, to establish a fee, which would be paid by each person submitting an application for a permit, or a renewal or amendment thereof, to cover the costs incurred by its implementation of these provisions. The bill would require the fee to include a surcharge, to be determined annually by the Legislature, to cover the costs of the board and would require the surcharge to be deposited in the Underground Storage Tank Fund created in the General Fund. The bill would provide that the money in the fund is available, upon appropriation by the Legislature, to the board for purposes of carrying out the bill. The bill would require the fee to include a one-time \$5 surcharge, to be forwarded to the State Water Resources Control Board to cover the costs of developing regulations.

The bill would require a local agency to inspect every underground storage tank, within its jurisdiction, every 3 years, or to require a permitholder to employ, periodically, special inspectors to conduct the inspection, issue a report, and make recommendations which the permitholder would be required to implement or demonstrate to the local agency why these recommendations should not be implemented. The bill would authorize a representative of the local agency or the board to enter into any place where underground storage tanks are located, for inspections, testing, obtaining samples, and copying records, and would authorize these persons to also enter into real property which is within 2,000 feet of such a place, for these purposes.

The bill would require that all underground storage tanks installed after January 1, 1984, comply with certain requirements concerning design, construction, monitoring systems, and drainage, and would require that all underground storage tanks installed on or before that date have a monitoring system installed before January 1, 1985, and have a means for inspection. The bill would exempt underground storage tanks for motor vehicle fuel storage installed after January 1, 1984, from certain design and construction standards, if the tank either has a specified primary containment construction material and a leak monitoring system or if the tank has a pressurized piping system which is monitored. A local agency would be required to review the permit whenever there has been an unauthorized release which escapes from the secondary containment, increases certain



hazards, or causes tank deterioration, or whenever the agency determines that the tank is unsafe. A local agency would also be required to consider certain factors in determining whether to modify or terminate a permit.

The bill would require that if the owner of the tank is not the operator, the owner is required to provide certain information to the operator and enter into a written contract with the operator requiring the operator to monitor the tank.

The bill would require that unauthorized releases be recorded and reported by the operator of the underground storage tank within 24 hours to the local agency, as specified. The bill would authorize a local agency to request the department or a regional water quality control board to utilize that agency's authority to take corrective action to remedy the effects of a release of a hazardous substance from an underground storage tank. The bill would authorize the permitholder of an underground storage tank containing motor vehicle fuel not under pressure to repair the tank after an unauthorized release from that tank with an interior-coating process once, if the tank meets specified requirements, but if the results of a certain test show that a serious corrosion problem exists, the local agency may require additional protection or prohibit the repair. The bill would repeal this authorization if specified regulations are adopted. The bill would also prohibit a person from abandoning, closing, or temporarily ceasing to operate an underground storage tank unless certain actions are taken by that person. The bill would make an operator or owner of a tank liable for a civil penalty of from \$500 to \$5,000 for failing to take certain actions concerning permitting, monitoring, maintaining records, compliance, and closure of an underground storage tank, and would impose upon a person falsifying records, or failing to file the report of an unauthorized release, a fine of from \$5,000 to \$10,000, or imprisonment in the county jail for up to one year, or both.

The bill would exempt cities and counties which have enacted ordinances, before January 1, 1984, from the provisions of this act if the ordinances provide, at least, for double containment and monitoring of underground storage tanks and permits are issued under the ordinance. The bill would require a local agency so exempted to submit specified reports and information to the board. The bill would specify that its provisions do not otherwise affect the authority of a city or county to adopt ordinances concerning information, investigations, inspections, or enforcement.

The bill would require the State Water Resources Control Board to issue regulations implementing specified provisions by January 1, 1985, and would authorize the board to adopt regulations implementing other provisions.

The bill would also state the intent of the Legislature that these provisions are of statewide interest and concern and are intended to preempt the local regulation of underground storage tanks, as

specified, and that the program created within the department by this bill will be funded both through the department's budget commencing with the 1984-85 fiscal year and through the use of existing financial resources.

The bill would authorize a permit holder to apply to the board for a categorical variance from specified provisions and to apply to the regional water quality control board for a site-specific variance from specified provisions, pursuant to a specified procedure.

(2) The bill would provide that, notwithstanding Section 2231.5 of the Revenue and Taxation Code, this act does not contain a repealer, as required by that section; therefore, the provisions of the act would remain in effect unless and until they are amended or repealed by a later enacted act.

(3) Article XIII B of the California Constitution and Sections 2231 and 2234 of the Revenue and Taxation Code require the state to reimburse local agencies and school districts for certain costs mandated by the state. Other provisions require the Department of Finance to review statutes disclaiming these costs and provide, in certain cases, for making claims to the State Board of Control for reimbursement.

This bill would impose a state-mandated local program by requiring counties to carry out a program of permitting and inspecting underground tanks used for the storage of hazardous substances and by imposing obligations upon cities, counties, and districts which operate underground storage tanks. Although the bill provides for a self-financing provision concerning the administration of these provisions, it would provide that no appropriation is made for the other imposed costs, by this act for the purpose of making reimbursement pursuant to the constitutional mandate or Section 2231 or 2234, but would recognize that local agencies and school districts may pursue their other available remedies to seek reimbursement for these costs.

*The people of the State of California do enact as follows:*

SECTION 1. (a) The Legislature finds and declares as follows:

(1) Substances hazardous to the public health and safety, and to the environment, are stored prior to use or disposal in thousands of underground locations in the state.

(2) Underground tanks used for the storage of hazardous substances and wastes are potential sources of contamination of the ground and underlying aquifers, and may pose other dangers to public health and the environment.

(3) In several known cases, underground storage has resulted in undetected and uncontrolled releases of hazardous substances into the ground. These releases have contaminated public drinking water supplies and created a potential threat to the public health and to the waters of the state.

(4) The Legislature has previously enacted laws regulating the management of hazardous wastes, including statutes providing the means to clean up releases of hazardous substances into the environment when the public health, domestic livestock, wildlife and the environment are endangered. Current laws do not specifically govern the construction, maintenance, testing and use of underground tanks used for the storage of hazardous substances, or the short-term storage of hazardous wastes prior to disposal, for the purposes of protecting the public health and the environment.

(5) The protection of the public from releases of hazardous substances is an issue of statewide concern.

(b) The Legislature therefore declares that it is in the public interest to establish a continuing program for the purpose of preventing contamination from, and improper storage of, hazardous substances stored underground. It is the intent of the Legislature, in enacting this act, to establish orderly procedures that will ensure that newly constructed underground storage tanks meet appropriate standards and that existing tanks be properly maintained, inspected, and tested so that the health, property, and resources of the people of the state will be protected.

SEC. 2. Section 25150.1 is added to the Health and Safety Code, to read:

25150.1. The requirements in Sections 25284 and 25284.1 apply to the construction, operation, maintenance, monitoring, and testing of underground storage tanks, as defined in subdivision (m) of Section 25280, which are required to obtain hazardous waste facilities permits from the department. The department shall adopt regulations implementing the requirements of Sections 25284 and 25284.1, for regulating the construction, operation, maintenance, monitoring, and testing of underground storage tanks used for the storage of hazardous wastes which standards and regulations are necessary to protect against hazards to the public health, to domestic livestock, to wildlife, or to the environment. The regulations department shall adopt the regulations by January 1, 1985. If the regulations are not adopted by that date, the regulations adopted by the board implementing Section 25284.1 shall be deemed to be the regulations of the department pursuant to this section until new regulations are adopted by the department pursuant to this section.

SEC 3. Chapter 6.7 (commencing with Section 25280) is added to Division 20 of the Health and Safety Code, to read:

#### CHAPTER 6.7. UNDERGROUND STORAGE OF HAZARDOUS SUBSTANCES

25280. For purposes of this chapter, the following definitions apply:

(a) "Department" means the State Department of Health Services.

(b) "Facility" means any one, or combination of, underground storage tanks used by a single business entity at a single location or site.

(c) "Hazardous substance" means all of the following liquid and solid substances, unless the department, in consultation with the State Water Resources Control Board, determines the substance could not adversely affect the quality of the waters of the state:

(1) Substances on the list prepared by the Director of the Department of Industrial Relations pursuant to Section 6382 of the Labor Code.

(2) Hazardous substances, as defined in Section 25316.

(3) Any substance or material which is classified by the National Fire Protection Association (NFPA) as a flammable liquid, a class II combustible liquid, or a class III-A combustible liquid.

(d) "Local agency" means the department, office, or other agency of a county or city designated pursuant to Section 25282.

(e) "Person" means an individual, trust, firm, joint stock company, corporation, including a government corporation, partnership, and association. "Person" also includes any city, county, district, the state, or any department or agency thereof.

(f) "Board" means the State Water Resources Control Board.

(g) "Primary containment" means the first level of containment, such as the portion of a tank which comes into immediate contact on its inner surface with the hazardous substance being contained.

(h) "Product-tight" means impervious to the substance which is contained, or is to be contained, so as to prevent the seepage of the substance from the primary containment. To be product-tight, the tank shall not be subject to physical or chemical deterioration by the substance which it contains over the useful life of the tank.

(i) "Secondary containment" means the level of containment external to, and separate from, the primary containment.

(j) "Single-walled" means construction with walls made of only one thickness of material. For the purpose of this chapter, laminated, coated, or clad materials shall be considered single-walled.

(k) "Storage" or "store" means the containment, handling or treatment of hazardous substances, either on a temporary basis or for a period of years. "Storage" or "store" does not mean the storage of hazardous wastes in an underground storage tank if the person operating the tank has been issued a hazardous waste facilities permit by the department pursuant to Section 25200 or granted interim status under Section 25200.5.

(l) "Unauthorized release" means any release or emission of any hazardous substance which does not conform to the provisions of this chapter, unless this release is authorized by the State Water Resources Control Board pursuant to Division 7 (commencing with Section 13000) of the Water Code.

(m) "Underground storage tank" means any one or combination of tanks, including pipes connected thereto, which is used for the

storage of hazardous substances and which is substantially or totally beneath the surface of the ground. "Underground storage tank" does not include any of the following:

(1) A tank used for the storage of hazardous substances used for the control of external parasites of cattle and subject to the supervision of the county agricultural commissioner if the county agricultural commissioner determines, by inspection prior to use, that the tank provides a level of protection equivalent to that required by Section 25284, if the tank was installed after June 30, 1984, or protection equivalent to that provided by Section 25284.1, if the tank was installed on or before June 30, 1984.

(2) Tanks which are located on a farm and store motor vehicle fuel which is used only to propel vehicles used primarily for agricultural purposes.

(3) Tanks used for aviation or motor vehicle fuel located within one mile of a farm and the tank is used by a licensed pest control operator, as defined in Section 11705 of the Food and Agricultural Code, who is primarily involved in agricultural pest control activities.

(4) Structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons. Sumps which are a part of a monitoring system required under Section 25284 or Section 25284.1 are not exempted by this section. These structures may be regulated by the board pursuant to the Porter-Cologne Water Quality Control Act (Division 7 (commencing with Section 13000) of the Water Code) to ensure that they do not pose a threat to water quality. The board shall conduct a study which analyzes the necessity of applying the standards of Section 25284 and 25284.1 to the structures exempted by this section. The board shall complete the study by January 1, 1985. After completing the study the board shall review existing regulatory authority over such structures.

(n) "Special inspectors" means a professional engineer, registered pursuant to Chapter 7 (commencing with Section 6700) of Division 3 of the Business and Professions Code, who is qualified to attest, at a minimum, to structural soundness, seismic safety, the compatibility of construction materials with contents, cathodic protection, and the mechanical compatibility of the structural elements.

(o) "Owner" means the owner of an underground storage tank.

(p) "Operator" means the operator of an underground storage tank.

(q) "Pipe" means any pipeline or system of pipelines which is used in connection with the storage of hazardous substances and which are not intended to transport hazardous substances in interstate or intrastate commerce or to transfer hazardous materials in bulk to or from a marine vessel.

25281. (a) The department shall compile a comprehensive

master list of hazardous substances. The master list shall be made available to the public and mailed to each local agency no later than June 30, 1984, notwithstanding any other provision of law, including Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. Local agencies and owners or operators of underground storage tanks shall use the master list or, when adopted, the revised list adopted pursuant to subdivision (b), to determine which underground storage tanks require permits pursuant to this chapter. Hazardous substances included on the list may be denominated by scientific, common, trade, or brand names.

(b) The department may revise, when appropriate, the master list of all the hazardous substances specified in subdivision (a). The revised list of hazardous substances shall be prepared and adopted, and may be further revised, in accordance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code.

**25282.** Every county shall implement this chapter pursuant to the regulations adopted by the board. A city may, by ordinance, assume responsibility for the implementation of this chapter pursuant to the regulations adopted by the board and, if so, shall have exclusive jurisdiction within the boundary of the city for the purposes of carrying out this chapter. A city which assumes responsibility for implementation of this chapter shall provide notice of its program and consult with the county in which the city is located. A county shall designate a department, office, or other agency of that county as the local agency responsible for administering and enforcing the provisions of this chapter and a city which assumes responsibility for implementing this chapter shall also make a similar designation.

**25283.** (a) Except as provided in subdivision (b), no person shall own or operate an underground storage tank unless a permit for its operation has been issued by the local agency to the owner. Each local agency shall prepare a form which provides for the acceptance of the obligations of a transferred permit by any person who is to assume the ownership of an underground storage tank from the previous owner and is to be transferred the permit to operate the tank. That person shall complete the form accepting the obligations of the permit and submit the completed form to the local agency at least 30 days after the ownership of the underground storage tank is to be transferred. A local agency may review and modify, or terminate, the transfer of the permit to operate the underground storage tank, pursuant to the criteria specified in subdivision (c) of Section 25284.1, upon receiving the completed form.

(b) Any person assuming ownership of an underground storage tank used for the storage of hazardous substances for which a valid operating permit has been issued shall have 30 days after the date of assumption of ownership to apply for an operating permit pursuant to Section 25283.2 or, if accepting a transferred permit, shall submit to the local agency the completed form accepting the obligations of

the transferred permit, as specified in subdivision (a). During the period from the date of application until the permit is issued or refused, the person shall not be held to be in violation of this section.

(c) When, in its judgment, it is appropriate to do so, the local agency may issue a single permit to a person for a facility.

25283.1. A permit to operate issued by the local agency pursuant to Section 25283 shall be effective for five years. A local agency shall not issue or renew a permit to operate an underground storage tank if the local agency inspects the tank and determines that the tank does not comply with this chapter.

25283.2. (a) An application for a permit to operate an underground storage tank, or for renewal of the permit, shall be made, by the owner, on a standardized form prepared by the board and provided by the local agency and shall be accompanied by the appropriate fee, as specified in Section 25283.3. The local agency shall provide the board with a copy of the completed application.

(b) The board shall store this information on a computer, for the purpose of managing and appropriately cross-referencing and indexing this data. The application form shall include, but not be limited to, requests for the following information:

(1) A description of the construction of the underground storage tank or tanks.

(2) A list of all the hazardous substances which are or will be stored in the underground storage tank or tanks, specifying the hazardous substances for each underground storage tank.

(3) A description of the monitoring program for the underground storage tank or tanks.

(4) The name and address of the person, firm, or corporation which owns the underground storage tank or tanks and, if different, the name and address of the person who operates the underground storage tank or tanks.

(5) The address of the facility at which the underground storage tank or tanks are located.

(6) The name of the person making the application.

(7) The name and 24-hour phone number of the contact person in the event of an emergency involving the facility.

(8) If the owner or operator of the underground storage tank is a public agency, the application shall include the name of the supervisor of the division, section, or office which operates the tank.

(c) As a condition of any permit to operate an underground storage tank, the permittee shall complete an annual report form, prepared by the board, which will detail any changes in the usage of any underground storage tanks, including the storage of new hazardous substances, changes in monitoring procedure and unauthorized release occurrences, as defined in Sections 25284.3 and 25284.4. The requirements for computer storage and management of the data generated by the application forms specified in subdivision (b) also apply to information generated by the annual reports.

(d) If a permittee stores in an underground storage tank or tanks a hazardous substance which is not listed in the application, as required by paragraph (2) of subdivision (b), the permittee shall apply for a new or amended permit within 30 days after commencing the storage of that hazardous substance.

25283.3. (a) A fee shall be paid to the local agency by each person who submits an application for a permit to operate an underground storage tank or to renew or amend a permit. The governing body of the county, or a city which assumes enforcement jurisdiction, shall establish the amount of the fees at a level sufficient to pay the necessary and reasonable costs incurred in administering this chapter, including, but not limited to, permitting and inspection responsibilities. The governing body may provide for the waiver of fees when a public agency makes an application for a permit to operate or an application to renew a permit.

(b) This fee shall include a surcharge, the amount of which shall be determined by the Legislature annually to cover the costs of the board in carrying out its responsibilities under this chapter. The surcharge shall be transmitted to the board and deposited in the Underground Storage Tank Fund hereby created in the General Fund. The money in this account is available, upon appropriation by the Legislature, to the board for the purposes of implementing this chapter.

(c) From January 1, 1984 to June 30, 1984 there shall be a one-time surcharge of five dollars (\$5) on each tank permitted pursuant to this chapter, which surcharge shall be forwarded to the board, by the local agency, to cover the costs of developing the statewide regulations implementing this chapter, and shall be deposited in the Underground Storage Tank Fund.

25283.4. (a) The local agency shall inspect every underground storage tank within its jurisdiction at least once every three years. The purpose of the inspection is to determine whether the tank complies with the design and construction standards of Section 25284 or 25284.1 whichever is applicable, whether the operator has monitored and tested the tank as required by the permit, and whether the tank is in a safe operating condition. After an inspection, the local agency shall prepare a compliance report detailing the inspection and shall send a copy of this report to the permitholder.

(b) In addition to, or instead of, the inspections specified in subdivision (a), the local agency may require the permitholder to employ, periodically, special inspectors to conduct an audit or assessment of the permitholder's facility to determine whether the facility complies with the factors specified in subdivision (a) and to prepare a special inspection report with recommendations concerning the safe storage of hazardous materials at the facility. The report shall contain recommendations consistent with the provisions of this chapter, where appropriate. A copy of the report shall be filed with the local agency at the same time the inspector submits the



report to the permitholder. Within 30 days after receiving this report, the permitholder shall file with the local agency a plan to implement all recommendations contained in the report or shall demonstrate, to the satisfaction of the local agency, why these recommendations should not be implemented.

**25283.5.** In order to carry out the purposes of this chapter, any duly authorized representative of the local agency or the board has the authority specified in Section 25185, with respect to any place where underground storage tanks are located, and in Section 25185.5, with respect to real property which is within 2,000 feet of any place where underground storage tanks are located.

**25283.6.** (a) "Trade secrets," as used in this chapter, may include, but is not limited to, any formula, plan, pattern, process, tool, mechanism, compound, procedure, production data, or compilation of information which is not patented, which is known only to certain individuals within a commercial concern who are using it to fabricate, produce, or compound an article of trade or a service having commercial value, and which gives its user an opportunity to obtain a business advantage over competitors who do not know or use it.

(b) The board or a local agency may disclose trade secrets received by the board or the local agency pursuant to this chapter to authorized representatives or other governmental agencies only in connection with the board's or local agency's responsibilities pursuant to this chapter. The board and the local agency shall establish procedures to ensure that these trade secrets are utilized only in connection with these responsibilities and are not otherwise disseminated without the consent of the person who provided the information to the board or the local agency.

(c) Any person providing information pursuant to Section 25283.2 shall, at the time of its submission, identify all information which the person believes is a trade secret. Any information or record not identified as a trade secret is available to the public, unless exempted from disclosure by other provisions of law.

(d) Where the local agency, by ordinance, provides an alternative to the listing of a substance which is a trade secret, the person storing that substance shall provide the identification of the material directly to the board pursuant to this section.

**25284.** Every underground storage tank installed after January 1, 1984, shall meet the following requirements.

(a) Be designed and constructed to provide primary and secondary levels of containment of the hazardous substances stored in them in accordance with the following performance standards:

(1) Primary containment shall be product-tight.

(2) Secondary containment shall be constructed to prevent structural weakening as a result of contact with any released hazardous substances, and also shall be capable of storing, for the maximum anticipated period of time necessary for the recovery of

any released hazardous substance.

(3) In the case of an installation with one primary container, the secondary containment shall be large enough to contain at least 100 percent of the volume of the primary tank.

(4) In the case of multiple primary tanks, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary tank placed in it, or 10 percent of the aggregate internal volume of all primary tanks, whichever is greater.

(5) If the facility is open to rainfall, then the secondary containment must be able to additionally accommodate the volume of a 24-hour rainfall as determined by a 100-year storm history.

(6) Single-walled containers do not fulfill the requirement of an underground storage tank providing both a primary and a secondary containment

(7) The design and construction of underground storage tanks for motor vehicle fuels storage need not meet the requirements of paragraphs (1) to (6), inclusive, if the primary containment construction is of glass fibre reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic, any such alternative primary containment is installed in conjunction with a system that will intercept and direct a leak from any part of the tank to a monitoring well to detect any release of motor vehicle fuels stored in the tank and which is designed to provide early leak detection, response, and to protect groundwater from releases, and if the monitoring is in accordance with the alternative method identified in paragraph (3) of subdivision (b) of Section 25284.1. Pressurized piping systems connected to underground storage tanks used for the storage of motor vehicle fuels and monitored in accordance with paragraph (3) of subdivision (b) of Section 25284.1 shall also be deemed to meet the requirements of this subdivision.

(b) Be designed and constructed with a monitoring system capable of detecting the entry of the hazardous material stored in the primary containment into the secondary containment. If water could intrude into the secondary containment, a means of monitoring for water intrusion and for safely removing the water shall also be provided.

(c) When required by the local agency, a means of overflow protection for any primary tank, including an overflow prevention device or an attention-getting higher level alarm, or both. Primary tank filling operations of underground storage tanks containing motor vehicle fuels which are visually monitored and controlled by a facility operator satisfy the requirements of this paragraph.

(d) Different substances in combination may cause a fire or explosion, or the production of flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container, shall be separated in both the primary and secondary containment so as to avoid potential intermixing

(e) If water could enter into the secondary containment by

precipitation or infiltration, the facility shall contain a means of removing the water by the owner or operator. This removal system shall also provide for a means of analyzing the removed water for hazardous substance contamination and a means of disposing of the water, if so contaminated, at an authorized disposal facility.

**25284.1.** For every underground storage tank installed on or before January 1, 1984, and used for the storage of hazardous substances the following actions shall be taken:

(a) On or before January 1, 1985, the owner shall outfit the facility with a monitoring system capable of detecting unauthorized releases of any hazardous substances stored in the facility, and thereafter, the operator shall monitor each facility, based on materials stored and the type of monitoring installed.

(b) Provide a means for visual inspection of the tank, wherever practical, for the purpose of the monitoring required by subdivision

(a). Alternative methods of monitoring the tank on a monthly, or more frequent basis, may be required by the local agency, consistent with the regulations of the board.

The alternative monitoring methods include, but are not limited to, the following methods:

(1) Pressure testing, vacuum testing or hydrostatic testing of the piping systems or underground storage tanks.

(2) A groundwater monitoring well or wells which are down gradient and adjacent to the underground storage tank, vapor analysis within a well where appropriate, and analysis of soil borings at the time of initial installation of the well. The board shall develop regulations specifying monitoring alternatives. The local agency, or any other public agency specified by the local agency, shall approve the location and number of wells, the depth of wells and the sampling frequency, pursuant to these regulations.

(3) For monitoring tanks containing motor vehicle fuels, daily gauging and inventory reconciliation by the operator, if inventory records are kept on file for one year and are reviewed quarterly, the tank is tested for tightness hydrostatically or, when appropriate with pressure between three and five pounds, inclusive, per square inch at time intervals specified by the board and whenever any pressurized system has a leak detection device to monitor for leaks in the piping. The tank shall also be tested for tightness hydrostatically or where appropriate, with pressure between three and five pounds, inclusive, per square inch whenever there is a shortage greater than the amount which the board shall specify by regulation.

**25284.2.** The operator of the underground storage facility shall monitor the facility using the method specified on the permit for the facility. Records shall be kept in sufficient detail to enable the local agency to determine that the operator has undertaken all monitoring activities required by the permit to operate.

If the operator is not the owner, the owner shall provide a copy of

the permit to the operator, enter into a written contract with the operator which requires the operator to monitor the tank as set forth in the permit, and provide the operator with a copy of Section 25287, or a summary of this section, in the form which the board specifies by regulation. The owner shall notify the local agency of any change of operator.

**25284.3.** Any unauthorized release from the primary containment which the operator is able to cleanup within eight hours, and which does not escape from the secondary containment, does not increase the hazard of fire or explosion and does not cause any deterioration of the secondary containment of the underground storage tank, shall be recorded on the operator's monitoring reports.

**25284.4.** (a) Any unauthorized release which escapes from the secondary containment, increases the hazard of fire or explosion, or causes any deterioration of the secondary containment of the underground tank shall be reported by the operator or the local agency within 24 hours after the release has been detected or should have been detected. A full written report shall be transmitted by the owner or operator of the underground storage tanks within five working days of the occurrence of the release.

The local agency shall review the permit whenever there has been an unauthorized release or when it determines that the underground storage tank is unsafe. In determining whether to modify or terminate the permit, the local agency shall consider the age of the tank, the methods of containment, the methods of monitoring, the feasibility of any required repairs, the concentration of the hazardous substances stored in the tank, the severity of potential unauthorized releases, and the suitability of any other long-term measures preventive measures which would meet the requirements of this chapter.

(b) In cooperation with the Office of Emergency Services, the board shall submit an annual statewide report by county, to the Legislature, of all unauthorized releases, indicating for each unauthorized release the operator, the hazardous substance, the quantity of the unauthorized release, and the actions taken to abate the problem.

(c) The reporting requirements imposed by this section are in addition to any requirements which may be imposed by Section 13271 of the Water Code.

**25284.5** If there has been any unauthorized release, as defined in subdivision (a) of Section 25284.4, from an underground storage tank containing motor vehicle fuel not under pressure, the permitholder may repair the tank once by an interior-coating process if the tank meets all of the following requirements:

(a) An ultrasonic test, or comparable test, has been conducted to determine the thickness of the storage tank. If the result of the test indicates that a serious corrosion problem exists with regard to the tank, as determined by the person conducting the test, the local

agency may require additional corrosion protection for the tank or may deny the authorization to repair.

(b) A hydrostatic test is an alternative to the ultrasonic test in subdivision (a). If the result of the test indicates that a serious problem exists with regard to the integrity of the tank, as determined by the person conducting the test or the local agency, the local agency may require additional protection for the tank or may deny authorization for the repair.

(c) A vacuum test has been conducted with a result indexed at not more than 5.3 inches of mercury. This requirement shall not be applicable if technology is not available for testing the tank on site using accepted engineering practices.

(d) Following the repair, the standard installation testing for requirements for underground storage tanks specified in Section 2-7.3 of the Flammable and Combustible Liquids Code, adopted by the National Fire Protection Association on November 20, 1981 (NFPA 30-1981), and published in the 1982 edition of the National Fire Code shall be followed.

(e) The material used to repair the tank by an interior-coating process is compatible with the motor vehicle fuel that is stored, as approved by the board by regulation.

(f) The material used to repair the tank by an interior-coating process is applied in accordance with nationally recognized engineering practices such as the American Petroleum Institute's recommended practice No. 1631 for the interior lining of existing underground storage tanks.

(g) The board may develop regulations, in consultation with the State Fire Marshal, for the repair of underground storage tanks, and the standards in this section shall remain in effect until the adoption of these regulations.

25285. The local agency may request the following agencies to utilize that agency's authority to remedy the effects of, and remove, any hazardous substance which has been released from an underground storage tank:

(a) The department which may take action pursuant to Chapter 6.8 (commencing with Section 25300) and, for this purpose, any unauthorized release shall be deemed a release as defined in Section 25320.

(b) A regional water quality control board may take action pursuant to Division 7 (commencing with Section 13000) of the Water Code and, for this purpose, the discharged hazardous substance shall be deemed a waste as defined in subdivision (d) of Section 13050.

25286. (a) No person shall abandon an underground storage tank or close or temporarily cease operating an underground storage tank, except as provided in this section.

(b) An underground storage tank which is temporarily taken out of service, but which the operator intends to return to use, shall

continue to be subject to all the permit, inspection, and monitoring requirements of this chapter, unless the operator complies with the provisions of subdivision (c) for the period of time the underground tank is not in use.

(c) No person shall close an underground storage tank unless the person undertakes all of the following actions:

(1) Demonstrates to the local agency that all residual amounts of the hazardous substance or hazardous substances which were stored in the tank prior to its closure have been removed, properly disposed of, and neutralized.

(2) Adequately seals the tank to minimize any threat to the public safety and the possibility of water intrusion into, or runoff from, the tank.

(3) Provides for, and carries out, the maintenance of the tank as the local agency determines is necessary, for the period of time the local agency requires.

(4) Demonstrates to the local agency that there has been no significant soil contamination resulting from a discharge in the area surrounding the underground storage tank or facility.

25287. (a) Any operator of an underground storage tank shall be liable for a civil penalty of not less than five hundred dollars (\$500) or more than five thousand dollars (\$5,000) per day for any of the following:

(1) Operates an underground storage tank which has not been issued a permit.

(2) Fails to monitor the underground storage tank, as required by the permit.

(3) Fails to maintain records, as required by Section 25283.2.

(4) Fails to report an unauthorized release, as required by Sections 25284.3 and 25284.4.

(5) Fails to properly close an underground storage tank, as required by Section 25286.

(b) Any owner of an underground storage tank shall be liable for a civil penalty of not less than five hundred dollars (\$500) or more than five thousand dollars (\$5,000) per day for any of the following:

(1) Failure to obtain a permit as specified by this chapter.

(2) Failure to repair an underground tank in accordance with the provisions of this chapter.

(3) Abandonment or improper closure of any underground tank subject to the provisions of this chapter.

(4) Knowing failure to take reasonable and necessary steps to assure compliance with this chapter by the operator of an underground tank.

(c) Any person who falsifies any monitoring records required by this chapter, or knowingly fails to report an unauthorized release, shall, upon conviction, be punished by a fine of not less than five thousand dollars (\$5,000) or more than ten thousand dollars (\$10,000), or by imprisonment in the county jail for not to exceed one

year, or by both that fine and imprisonment.

(d) In determining both the civil and criminal penalties imposed pursuant to this section, the court shall consider all relevant circumstances, including, but not limited to, the extent of harm or potential harm caused by the violation, the nature of the violation and the period of time over which it occurred, the frequency of past violations, and the corrective action, if any, taken by the person who holds the permit.

(e) Penalties under this section are in addition to, and do not supersede or limit, any and all other legal remedies and penalties, civil or criminal, which may be applicable under other laws.

25288. (a) Any city, county or city and county which prior to January 1, 1984, has adopted an ordinance which, at a minimum meets the requirements set forth in Section 25284 and 25284.1, providing for double containment, monitoring of underground storage tanks and under which permits are issued therefor is exempt from the provisions of this chapter so long as the ordinance, as it may be amended, continues to meet the requirements of Sections 25284 and 25284.1.

Those local agencies which are exempted from this chapter pursuant to this subdivision shall submit to the board the application form and annual information specified by Section 25283.2 and shall submit a written report of any unauthorized release from an underground storage tank to the Office of Emergency Services within 10 working days from the time the local agency is notified of the unauthorized release.

(b) This chapter shall not be construed to limit or abridge the authority of any city, county, or city and county to adopt an ordinance requiring information, conducting investigations, inspections, or implementing and enforcing this chapter.

25288.1. The Legislature hereby finds and declares that the provisions of this chapter are of statewide interest and concern and are intended to preempt any local regulations of underground storage tanks, which regulations are for the protection of the soil from contamination or the protection of the beneficial uses of waters of the state, and which conflict with these provisions, except as provided in Section 25288.

25288.2. (a) The board shall develop regulations implementing the standards of Section 25284, 25284.1, 25284.3, 25284.4, 25284.5, 25286, and 25288.3. These regulations shall be promulgated by the board by January 1, 1985. The board may adopt regulations implementing Sections 25283.2, 25283.3 and 25283.6, as it deems necessary.

(b) Until the board adopts regulations, any city, county, or city and county may implement the provisions of Section 25284 with regard to permits. Any tank or facility so permitted shall be deemed to be in compliance with the regulations of the board implementing that section. Any underground storage tank installed within a city,

county or city and county which has not implemented the provisions of Section 25824 prior to the adoption of regulations by the board shall be subject to the same requirements of this chapter as an underground storage tank installed prior to January 1, 1984.

25288.3. (a) Any permitholder or permit applicant may apply to the board for a categorical variance from Section 25824 or 25824.1. The application shall include a description of the proposed alternative program, method, device, or process and description of the region, area, or circumstances under which the variance would apply. The board shall give notice to all affected cities, counties and city and counties. The board shall issue a categorical variance from this chapter if it finds, after investigation and at least two public hearings held in different areas of the state, as selected by the board, that the applicant has demonstrated by clear and convincing evidence that the proposed alternative will adequately protect the soil and the beneficial uses of water of the state from an unauthorized release. The board may remand the application to the appropriate regional board if it determines the application falls within subdivision (c).

(b) After January 1, 1984, any local agency may apply to the board for authority to implement design and construction standards for the containment of a hazardous substance in underground storage tanks which are in addition to those set forth in this chapter. The application shall include a description of the additional standards and a discussion of the need to implement them. The board shall approve the application if it finds, after an investigation and public hearing, that the local agency has demonstrated by clear and convincing evidence that the additional standards are necessary to adequately protect the soil and the beneficial uses of the waters of the state from unauthorized releases.

The board shall make its determination within six months of the date of application for authority to implement additional standards. If the board's determination upholds the application for authority to implement additional standards, the standards shall be effective as of the date of the determination. If the board's determination does not uphold the application, the additional standards shall not go into effect.

(c) Any permitholder or permit applicant may apply to the regional water quality control board having jurisdiction over the location of the permitholder or applicant's facility for a site-specific variance from Section 25824 or 25824.1. Before applying for a variance, the applicant shall contact the local agency. If the local agency decides that a variance would be necessary to approve a proposal, or if the local agency does not make a decision within 60 days, the permitholder or applicant may proceed with a variance application. At least 30 days before applying to the appropriate regional water quality control board the applicant shall notify and request the local agency and the city, county, or city and county



having land use jurisdiction over the city to join the applicant in the variance application. The city, county, or city and county shall provide notice of the receipt of this request to any person who has requested the notice. The local agency shall have 30 days from completion of any documents required by the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) and the receipt of the regional board's staff recommendation and analysis to act on the request. The regional board shall not hold a hearing upon the application until after the expiration of this 30-day period. Failure of the local agency or city, county, or city and county to join in the variance application shall not affect the request of the applicant to proceed with the variance application, except that the board shall consider the local agency's and the city, county, or city and county's recommendations in rendering its decision. The notification and request to join to the local agency and the city, county, or city and county and the application to the appropriate regional board shall include a description of the proposed alternative program method or process. The regional water quality control board shall approve the variance if it finds, after investigation and public hearing, that the applicant has demonstrated by clear and convincing evidence that because of special circumstances not generally applicable to other property or facilities, including size, shape, design, topography, location or surroundings, the strict application of the standards of this chapter would be unnecessary to adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release, or that strict application would create practical difficulties not generally applicable to other facilities or property and that the proposed alternative will adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release.

(d) Applicants for action under this section shall pay a fee determined by the state water quality control board to be reasonable in covering costs in considering the application.

25289. This chapter shall not be construed to limit or abridge the powers and duties granted to the State Department of Health Services by Chapter 6.5 (commencing with Section 25100) and by Chapter 6.8 (commencing with Section 25300) or to the State Water Resources Control Board and each regional water quality control board by Division 7 (commencing with Section 13000) of the Water Code.

SEC. 4. It is the intent of the Legislature that the program created by this act within the State Department of Health Services will be funded both through the department's budget commencing with the 1984-85 fiscal year and through the use of existing financial resources.

SEC. 5. Notwithstanding Section 2231.5 of the Revenue and Taxation Code, this act does not contain a repealer, as required by that section; therefore, the provisions of this act shall remain in effect

unless and until they are amended or repealed by a later enacted act.

SEC. 6. No appropriation is made and no reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution or Section 2231 or 2234 of the Revenue and Taxation Code because the local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for administering the program or level of service mandated by this act or else it is recognized, that a local agency or school district may pursue any remedies to obtain reimbursement available to it under Chapter 3 (commencing with Section 2201) of Part 4 of Division 1 of that code.

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## 2. Chapter 1038, Statutes of 1984 (AB 3565, Sher) (trailer bill)

**CHAPTER 1038**

**An act to amend and renumber Sections 25280, 25281, 25282, 25283, 25283.1, 25283.2, 25283.3, 25283.4, 25283.5, 25283.6, 25284, 25284.1, 25284.2, 25284.3, 25284.4, 25284.5, 25285, 25286, 25287, 25288, 25288.1, 25288.2, 25288.3, and 25289 of, and to add Sections 25290 and 25299.6 to, the Health and Safety Code, relating to hazardous substances.**

[Approved by Governor September 11, 1984. Filed with  
Secretary of State September 11, 1984.]

**LEGISLATIVE COUNSEL'S DIGEST**

**AB 3565, Sher. Hazardous substances: underground storage.**

(1) Existing law regulates, generally, the storage of hazardous substances in underground tanks and exempts from the definition of "underground storage tank" tanks used for specified purposes.

This bill would define "tank" for these purposes. The bill would additionally exempt from the definition of "underground storage tank" a tank which holds 1,100 gallons or less, is located at a residence, and stores home heating fuel.

(2) Existing law imposes a one-time \$5 surcharge, until June 30, 1984, on each tank permitted pursuant to these provisions.

This bill would repeal the obsolete provision imposing that surcharge.

(3) Existing law exempts underground storage tanks for motor vehicle fuel storage installed after January 1, 1984, from certain design and construction standards, if the tank either has a specified primary containment construction material and a leak monitoring system or if the tank has a pressurized piping system which is monitored.

This bill would require that such an exempt tank, with a monitored pressurized piping system, also have the specified primary containment construction material and a leak monitoring system.

(4) Existing law requires owners of underground storage tanks which were installed on or before January 1, 1984, to outfit the tanks with a monitoring system by January 1, 1985.

This bill would extend the date by which the tanks are required to be so outfitted to July 1, 1985.

(5) Existing law requires that an underground storage tank installed after January 1, 1984, which is open to rainfall, have a secondary containment which can accommodate a specified volume of rainfall determined by a 100-year storm history.

This bill would instead require the volume of rainfall to be determined by a 25-year storm history.

(6) Existing law authorizes the permitholder of an underground storage tank which contains motor vehicle fuel not under pressure

to repair the tank, after a specified unauthorized release from that tank, with an interior-coating process if the tank meets specified requirements, including the conducting of a vacuum test.

This bill would additionally include another type of unauthorized release after which the tank may be so repaired and would instead require the vacuum test to be conducted following the repair.

(7) Existing law requires a local agency which has enacted a specified ordinance prior to January 1, 1984, and is exempted from these provisions, to submit certain forms and notices to the State Water Resources Control Board.

This bill would require these exempted local agencies to submit to the board a surcharge to be used, upon appropriation, for administering these provisions.

(8) Existing law requires that unauthorized releases which the operator can clean up within 8 hours, and which meet specified requirements, be recorded on the monitoring reports. Existing law requires that an unauthorized release which escapes from the secondary containment be reported, as specified.

This bill would require that an unauthorized release be so recorded if the operator is able to clean up the release within 8 hours after the release was detected, or should reasonably have been detected. The bill would also require that unauthorized releases which escape from the primary containment, if no secondary containment exists, be reported, as specified.

(9) Existing law authorizes a permitholder or permit applicant to apply to the board for a categorical variance from specified standards required for underground storage tanks.

This bill would specify that a categorical variance is an alternative procedure applicable to more than one local agency jurisdiction. The bill would require the variance to prescribe the conditions which the applicant is required to maintain and would authorize the board to modify or revoke the variance upon a specified finding.

(10) Existing law authorizes a permitholder or permit applicant to apply to the regional water quality control board for a site-specific variance.

This bill would specify that a site-specific variance is an alternative procedure applicable in one local agency jurisdiction.

(11) Under existing law, before applying for a site-specific variance, the applicant is required to contact the local agency and, if the local agency decides that a variance would be necessary to approve a proposal, the applicant is allowed to proceed with the variance application.

This bill would instead provide that, if the local agency determines that a site-specific variance is required, the applicant may proceed with the application.

(12) Existing law requires the local agency to decide, within 30 days after completing specified documents, whether to join the applicant in the site-specific variance application and prohibits the

regional board from holding a hearing upon the application until after this period expires.

This bill would instead require the regional board to hold a public hearing within 60 days after the specified documents are completed.

(13) Existing law requires that a description of the proposed alternative method or process be included in the notification of, and request to join, the variance application submitted to the local agency and the city, county, or city and county, and be included in the application submitted to the regional board.

This bill would repeal that requirement.

(14) Existing law requires the board to complete a study by January 1, 1985, on the necessity of applying the requirements for underground storage tanks to certain structures exempt from these provisions.

This bill would extend the deadline for this study to July 1, 1985.

(15) The bill would provide that, notwithstanding Section 2231.5 of the Revenue and Taxation Code, this act does not contain a repealer, as required by that section; therefore, the provisions of the act would remain in effect unless and until they are amended or repealed by a later enacted act.

(16) Article XIII B of the California Constitution and Sections 2231 and 2234 of the Revenue and Taxation Code require the state to reimburse local agencies and school districts for certain costs mandated by the state. Other provisions require the Department of Finance to review statutes disclaiming these costs and provide, in certain cases, for making claims to the State Board of Control for reimbursement.

This bill would impose a state-mandated local program by requiring that cities, counties, and districts operating underground storage tanks for motor vehicle fuel storage equipped with a monitored pressurized piping system provide the tanks with additional equipment and by expanding the types of unauthorized releases which are required to be reported to the local agency.

The bill would provide that no appropriation is made by this act for the purpose of making reimbursement pursuant to the constitutional mandate or Section 2231 or 2234, but would recognize that local agencies and school districts may pursue their other available remedies to seek reimbursement for these costs.

*The people of the State of California do enact as follows:*

**SECTION 1.** Section 25280 is added to the Health and Safety Code, to read:

25280. (a) The Legislature finds and declares as follows:

(1) Substances hazardous to the public health and safety and to the environment are stored prior to use or disposal in thousands of underground locations in the state.

(2) Underground tanks used for the storage of hazardous

substances and wastes are potential sources of contamination of the ground and underlying aquifers, and may pose other dangers to public health and the environment.

(3) In several known cases, underground storage has resulted in undetected and uncontrolled releases of hazardous substances into the ground. These releases have contaminated public drinking water supplies and created a potential threat to the public health and to the waters of the state.

(4) The Legislature has previously enacted laws regulating the management of hazardous wastes, including statutes providing the means to clean up releases of hazardous substances into the environment when the public health, domestic livestock, wildlife, and the environment are endangered. Current laws do not specifically govern the construction, maintenance, testing, and use of underground tanks used for the storage of hazardous substances, or the short-term storage of hazardous wastes prior to disposal, for the purposes of protecting the public health and the environment.

(5) The protection of the public from releases of hazardous substances is an issue of statewide concern.

(b) The Legislature therefore declares that it is in the public interest to establish a continuing program for the purpose of preventing contamination from, and improper storage of, hazardous substances stored underground. It is the intent of the Legislature, in enacting this chapter, to establish orderly procedures that will ensure that newly constructed underground storage tanks meet appropriate standards and that existing tanks be properly maintained, inspected, and tested so that the health, property, and resources of the people of the state will be protected.

SEC. 2. Section 25280 of the Health and Safety Code is amended and renumbered to read:

25281. For purposes of this chapter, the following definitions apply:

(a) "Board" means the State Water Resources Control Board. "Regional board" means a California Regional Water Quality Control Board.

(b) "Department" means the State Department of Health Services.

(c) "Facility" means any one, or combination of, underground storage tanks used by a single business entity at a single location or site.

(d) "Hazardous substance" means all of the following liquid and solid substances, unless the department, in consultation with the board, determines that the substance could not adversely affect the quality of the waters of the state:

(1) Substances on the list prepared by the Director of Industrial Relations pursuant to Section 6382 of the Labor Code.

(2) Hazardous substances, as defined in Section 25316.

(3) Any substance or material which is classified by the National

Fire Protection Association (NFPA) as a flammable liquid, a class II combustible liquid, or a class III-A combustible liquid.

(e) "Local agency" means the department, office, or other agency of a county or city designated pursuant to Section 25283.

(f) "Operator" means the operator of an underground storage tank.

(g) "Owner" means the owner of an underground storage tank.

(h) "Person" means an individual, trust, firm, joint stock company, corporation, including a government corporation, partnership, or association. "Person" also includes any city, county, district, the state, any department or agency thereof, or the United States, to the extent authorized by federal law.

(i) "Pipe" means any pipeline or system of pipelines which is used in connection with the storage of hazardous substances and which are not intended to transport hazardous substances in interstate or intrastate commerce or to transfer hazardous materials in bulk to or from a marine vessel.

(j) "Primary containment" means the first level of containment, such as the portion of a tank which comes into immediate contact on its inner surface with the hazardous substance being contained.

(k) "Product-tight" means impervious to the substance which is contained, or is to be contained, so as to prevent the seepage of the substance from the primary containment. To be product-tight, the tank shall not be subject to physical or chemical deterioration by the substance which it contains over the useful life of the tank.

(l) "Secondary containment" means the level of containment external to, and separate from, the primary containment.

(m) "Single-walled" means construction with walls made of only one thickness of material. For the purpose of this chapter, laminated, coated, or clad materials are considered single-walled.

(n) "Special inspector" means a professional engineer, registered pursuant to Chapter 7 (commencing with Section 6700) of Division 3 of the Business and Professions Code, who is qualified to attest, at a minimum, to structural soundness, seismic safety, the compatibility of construction materials with contents, cathodic protection, and the mechanical compatibility of the structural elements of underground storage tanks.

(o) "Storage" or "store" means the containment, handling, or treatment of hazardous substances, either on a temporary basis or for a period of years. "Storage" or "store" does not mean the storage of hazardous wastes in an underground storage tank if the person operating the tank has been issued a hazardous waste facilities permit by the department pursuant to Section 25200 or granted interim status under Section 25200.5.

(p) "Tank" means a stationary device designed to contain an accumulation of hazardous substances which is constructed primarily of nonearthen materials (e.g. wood, concrete, steel, plastic) which provides structural support.



(q) "Unauthorized release" means any release or emission of any hazardous substance which does not conform to this chapter, unless this release is authorized by the board pursuant to Division 7 (commencing with Section 13000) of the Water Code.

(r) "Underground storage tank" means any one or combination of tanks, including pipes connected thereto, which is used for the storage of hazardous substances and which is substantially or totally beneath the surface of the ground. "Underground storage tank" does not include any of the following:

(1) A tank used for the storage of hazardous substances used for the control of external parasites of cattle and subject to the supervision of the county agricultural commissioner if the county agricultural commissioner determines, by inspection prior to use, that the tank provides a level of protection equivalent to that required by Section 25291, if the tank was installed after June 30, 1984, or protection equivalent to that provided by Section 25292, if the tank was installed on or before June 30, 1984.

(2) A tank which is located on a farm and stores motor vehicle fuel which is used only to propel vehicles used primarily for agricultural purposes.

(3) A tank which holds 1,100 gallons or less, is located at a residence of a person, and stores home heating fuel used exclusively for personal and nonincome producing purposes.

(4) A tank which is used for aviation or motor vehicle fuel, which tank is located within one mile of a farm and used by a licensed pest control operator, as defined in Section 11705 of the Food and Agricultural Code, who is primarily involved in agricultural pest control activities.

(5) Structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons. Sumps which are a part of a monitoring system required under Section 25291 or 25292 are not exempted by this section. Structures identified in this paragraph may be regulated by the board pursuant to the Porter-Cologne Water Quality Control Act (Division 7 (commencing with Section 13000) of the Water Code) to ensure that they do not pose a threat to water quality.

SEC. 3. Section 25281 of the Health and Safety Code is amended and renumbered to read:

25282. (a) The department shall compile a comprehensive master list of hazardous substances. The master list shall be made available to the public and mailed to each local agency no later than June 30, 1984, notwithstanding any other provision of law, including Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. Local agencies and owners or operators of underground storage tanks shall use the master list or, when adopted, the revised list adopted pursuant to subdivision (b), to determine which underground storage tanks require permits

pursuant to this chapter. Hazardous substances included on the list may be denominated by scientific, common, trade, or brand names.

(b) The department may revise, when appropriate, the master list of all the hazardous substances specified in subdivision (a). The revised list of hazardous substances shall be prepared and adopted, and may be further revised, in accordance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code.

SEC. 4. Section 25282 of the Health and Safety Code is amended and renumbered to read:

25283. Every county shall implement this chapter pursuant to the regulations adopted by the board. A city may, by ordinance, assume responsibility for the implementation of this chapter pursuant to the regulations adopted by the board and, if so, shall have exclusive jurisdiction within the boundary of the city for the purposes of carrying out this chapter. A city which assumes responsibility for implementation of this chapter shall provide notice of its program and consult with the county in which the city is located. A county shall designate a department, office, or other agency of that county as the local agency responsible for administering and enforcing this chapter, and a city which assumes responsibility for implementing this chapter shall also make a similar designation.

SEC. 5. Section 25283 of the Health and Safety Code is amended and renumbered to read:

25284. (a) Except as provided in subdivision (c), no person shall own or operate an underground storage tank unless a permit for its operation has been issued by the local agency to the owner.

(b) Each local agency shall prepare a form which provides for the acceptance of the obligations of a transferred permit by any person who is to assume the ownership of an underground storage tank from the previous owner and is to be transferred the permit to operate the tank. That person shall complete the form accepting the obligations of the permit and submit the completed form to the local agency within 30 days after the ownership of the underground storage tank is to be transferred. A local agency may review and modify, or terminate, the transfer of the permit to operate the underground storage tank, pursuant to the criteria specified in subdivision (a) of Section 25295, upon receiving the completed form.

(c) Any person assuming ownership of an underground storage tank used for the storage of hazardous substances for which a valid operating permit has been issued shall have 30 days after the date of assumption of ownership to apply for an operating permit pursuant to Section 25286 or, if accepting a transferred permit, shall submit to the local agency the completed form accepting the obligations of the transferred permit, as specified in subdivision (a). During the period from the date of application until the permit is issued or refused, the person shall not be held to be in violation of this section.

(d) When, in its judgment, it is appropriate to do so, the local

agency may issue a single permit to a person for a facility.

**SEC. 6.** Section 25283.1 of the Health and Safety Code is amended and renumbered to read:

**25285.** A permit to operate issued by the local agency pursuant to Section 25284 shall be effective for five years. A local agency shall not issue or renew a permit to operate an underground storage tank if the local agency inspects the tank and determines that the tank does not comply with this chapter.

**SEC. 7.** Section 25283.2 of the Health and Safety Code is amended and renumbered to read:

**25286.** (a) An application for a permit to operate an underground storage tank, or for renewal of the permit, shall be made, by the owner, on a standardized form prepared by the board and provided by the local agency and shall be accompanied by the appropriate fee, as specified in Section 25287. The local agency shall provide the board with a copy of the completed application.

(b) The board shall store this information on a computer for the purpose of managing and appropriately cross-referencing and indexing this data. The application form shall include, but not be limited to, requests for the following information:

(1) A description of the construction of the underground storage tank or tanks.

(2) A list of all the hazardous substances which are or will be stored in the underground storage tank or tanks, specifying the hazardous substances for each underground storage tank.

(3) A description of the monitoring program for the underground storage tank or tanks.

(4) The name and address of the person, firm, or corporation which owns the underground storage tank or tanks and, if different, the name and address of the person who operates the underground storage tank or tanks.

(5) The address of the facility at which the underground storage tank or tanks are located.

(6) The name of the person making the application.

(7) The name and 24-hour phone number of the contact person in the event of an emergency involving the facility.

(8) If the owner or operator of the underground storage tank is a public agency, the application shall include the name of the supervisor of the division, section, or office which operates the tank.

(c) As a condition of any permit to operate an underground storage tank, the permittee shall complete an annual report form, prepared by the board, which will detail any changes in the usage of any underground storage tanks, including the storage of new hazardous substances, changes in monitoring procedure, and unauthorized release occurrences, as defined in Sections 25294 and 25295. The requirements for computer storage and management of the data generated by the application forms specified in subdivision (b) also apply to information generated by the annual reports.

(d) If a permittee stores in an underground storage tank or tanks a hazardous substance which is not listed in the application, as required by paragraph (2) of subdivision (b), the permittee shall apply for a new or amended permit within 30 days after commencing the storage of that hazardous substance.

**SEC. 8.** Section 25283.3 of the Health and Safety Code is amended and renumbered to read:

25287. (a) A fee shall be paid to the local agency by each person who submits an application for a permit to operate an underground storage tank or to renew or amend a permit. The governing body of the county, or a city which assumes enforcement jurisdiction, shall establish the amount of the fees at a level sufficient to pay the necessary and reasonable costs incurred in administering this chapter, including, but not limited to, permitting and inspection responsibilities. The governing body may provide for the waiver of fees when a public agency makes an application for a permit to operate or an application to renew a permit.

(b) This fee shall include a surcharge, the amount of which shall be determined by the Legislature annually to cover the costs of the board in carrying out its responsibilities under this chapter. The surcharge shall be transmitted to the board and deposited in the Underground Storage Tank Fund hereby created in the General Fund. The money in this account is available, upon appropriation by the Legislature, to the board for the purposes of implementing this chapter.

**SEC. 9.** Section 25283.4 of the Health and Safety Code is amended and renumbered to read:

25288. (a) The local agency shall inspect every underground storage tank within its jurisdiction at least once every three years. The purpose of the inspection is to determine whether the tank complies with the design and construction standards of Section 25291 or 25292, whichever is applicable, whether the operator has monitored and tested the tank as required by the permit, and whether the tank is in a safe operating condition. After an inspection, the local agency shall prepare a compliance report detailing the inspection and shall send a copy of this report to the permitholder.

(b) In addition to, or instead of, the inspections specified in subdivision (a), the local agency may require the permitholder to employ, periodically, special inspectors to conduct an audit or assessment of the permitholder's facility to determine whether the facility complies with the factors specified in subdivision (a) and to prepare a special inspection report with recommendations concerning the safe storage of hazardous materials at the facility. The report shall contain recommendations consistent with this chapter, where appropriate. A copy of the report shall be filed with the local agency at the same time the inspector submits the report to the permitholder. Within 30 days after receiving this report, the permitholder shall file with the local agency a plan to implement all

recommendations contained in the report or shall demonstrate, to the satisfaction of the local agency, why these recommendations should not be implemented.

SEC. 10. Section 25283.5 of the Health and Safety Code is amended and renumbered to read:

25289. In order to carry out the purposes of this chapter, any duly authorized representative of the local agency or the board has the authority specified in Section 25185, with respect to any place where underground storage tanks are located, and in Section 25185.5, with respect to real property which is within 2,000 feet of any place where underground storage tanks are located.

SEC 11. Section 25283.6 of the Health and Safety Code is amended and renumbered to read:

25290. (a) "Trade secrets," as used in this chapter, includes, but is not limited to, any formula, plan, pattern, process, tool, mechanism, compound, procedure, production data, or compilation of information which is not patented, which is known only to certain individuals within a commercial concern who are using it to fabricate, produce, or compound an article of trade or a service having commercial value, and which gives its user an opportunity to obtain a business advantage over competitors who do not know or use it

(b) The board or a local agency may disclose trade secrets received by the board or the local agency pursuant to this chapter to authorized representatives or other governmental agencies only in connection with the board's or local agency's responsibilities pursuant to this chapter. The board and the local agency shall establish procedures to ensure that these trade secrets are utilized only in connection with these responsibilities and are not otherwise disseminated without the consent of the person who provided the information to the board or the local agency.

(c) Any person providing information pursuant to Section 25286 shall, at the time of its submission, identify all information which the person believes is a trade secret. Any information or record not identified as a trade secret is available to the public, unless exempted from disclosure by other provisions of law.

(d) Where the local agency, by ordinance, provides an alternative to the listing of a substance which is a trade secret, the person storing that substance shall provide the identification of the material directly to the board pursuant to this section.

SEC. 12. Section 25284 of the Health and Safety Code is amended and renumbered to read:

25291. Every underground storage tank installed after January 1, 1984, shall meet all of the following requirements:

(a) Be designed and constructed to provide primary and secondary levels of containment of the hazardous substances stored in them in accordance with the following performance standards:

(1) Primary containment shall be product-tight.

(2) Secondary containment shall be constructed to prevent structural weakening as a result of contact with any released hazardous substances, and also shall be capable of storing, for the maximum anticipated period of time necessary for the recovery of any released hazardous substance.

(3) In the case of an installation with one primary container, the secondary containment shall be large enough to contain at least 100 percent of the volume of the primary tank.

(4) In the case of multiple primary tanks, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary tank placed in it, or 10 percent of the aggregate internal volume of all primary tanks, whichever is greater.

(5) If the facility is open to rainfall, then the secondary containment shall be able to additionally accommodate the volume of a 24-hour rainfall as determined by a 25-year storm history.

(6) Single-walled containers do not fulfill the requirement of an underground storage tank providing both a primary and a secondary containment.

(7) The design and construction of underground storage tanks for motor vehicle fuels need not meet the requirements of paragraphs (1) to (6), inclusive, if all of the following conditions exist:

(A) The primary containment construction is of glass fiber reinforced plastic, cathodically protected steel, or steel clad with glass fiber reinforced plastic.

(B) Any alternative primary containment is installed in conjunction with a system that will intercept and direct a leak from any part of the tank to a monitoring well to detect any release of motor vehicle fuels stored in the tank.

(C) The system is designed to provide early leak detection and response and to protect the groundwater from releases.

(D) The monitoring is in accordance with the alternative method identified in paragraph (3) of subdivision (b) of Section 25292.

(E) Pressurized piping systems connected to underground storage tanks used for the storage of motor vehicle fuels and monitored in accordance with paragraph (3) of subdivision (b) of Section 25292 shall also be deemed to meet the requirements of this subdivision, provided that the tank meets the conditions of subparagraphs (A) to (D), inclusive.

(b) Be designed and constructed with a monitoring system capable of detecting the entry of the hazardous material stored in the primary containment into the secondary containment. If water could intrude into the secondary containment, a means of monitoring for water intrusion and for safely removing the water shall also be provided.

(c) When required by the local agency, a means of overflow protection for any primary tank, including an overflow prevention device or an attention-getting higher level alarm, or both. Primary tank filling operations of underground storage tanks containing

motor vehicle fuels which are visually monitored and controlled by a facility operator satisfy the requirements of this paragraph.

(d) If different substances are stored in the same tank and, in combination may cause a fire or explosion, or the production of flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container, then they shall be separated in both the primary and secondary containment so as to avoid potential intermixing.

(e) If water could enter into the secondary containment by precipitation or infiltration, the facility shall contain a means of removing the water by the owner or operator. This removal system shall also provide for a means of analyzing the removed water for hazardous substance contamination and a means of disposing of the water, if so contaminated, at an authorized disposal facility.

SEC. 13. Section 25284.1 of the Health and Safety Code is amended and renumbered to read:

**25292.** For every underground storage tank installed on or before January 1, 1984, and used for the storage of hazardous substances, the following actions shall be taken:

(a) On or before July 1, 1985, the owner shall outfit the facility with a monitoring system capable of detecting unauthorized releases of any hazardous substances stored in the facility, and thereafter, the operator shall monitor each facility, based on materials stored and the type of monitoring installed.

(b) Provide a means for visual inspection of the tank, wherever practical, for the purpose of the monitoring required by subdivision (a). Alternative methods of monitoring the tank on a monthly, or more frequent basis, may be required by the local agency, consistent with the regulations of the board.

The alternative monitoring methods include, but are not limited to, the following methods:

(1) Pressure testing, vacuum testing, or hydrostatic testing of the piping systems or underground storage tanks.

(2) A groundwater monitoring well or wells which are down gradient and adjacent to the underground storage tank, vapor analysis within a well where appropriate, and analysis of soil borings at the time of initial installation of the well.

(3) For monitoring tanks containing motor vehicle fuels, daily gauging and inventory reconciliation by the operator, if inventory records are kept on file for one year and are reviewed quarterly, the tank is tested for tightness hydrostatically or, when appropriate with pressure between three and five pounds, inclusive, per square inch at time intervals specified by the board, and any pressurized system has a leak detection device to monitor for leaks in the piping. The tank shall also be tested for tightness hydrostatically or where appropriate, with pressure between three and five pounds, inclusive, per square inch whenever there is a shortage greater than the amount which the board shall specify by regulation.

(c) The board shall develop regulations specifying monitoring alternatives. The local agency, or any other public agency specified by the local agency, shall approve the location and number of wells, the depth of wells, and the sampling frequency, pursuant to these regulations.

SEC. 14. Section 25284.2 of the Health and Safety Code is amended and renumbered to read:

25293. The operator of the underground storage facility shall monitor the facility using the method specified on the permit for the facility. Records shall be kept in sufficient detail to enable the local agency to determine that the operator has undertaken all monitoring activities required by the permit to operate.

If the operator is not the owner, the owner shall provide a copy of the permit to the operator, enter into a written contract with the operator which requires the operator to monitor the tank as set forth in the permit, and provide the operator with a copy of Section 25299, or a summary of this section, in the form which the board specifies by regulation. The owner shall notify the local agency of any change of operator.

SEC. 15. Section 25284.3 of the Health and Safety Code is amended and renumbered to read:

25294. Any unauthorized release from the primary containment which the operator is able to clean up within eight hours after the release was detected or should reasonably have been detected, and which does not escape from the secondary containment, does not increase the hazard of fire or explosion, and does not cause any deterioration of the secondary containment of the underground storage tank, shall be recorded on the operator's monitoring reports.

SEC. 16. Section 25284.4 of the Health and Safety Code is amended and renumbered to read:

25295. (a) Any unauthorized release which escapes from the secondary containment, or from the primary containment, if no secondary containment exists, increases the hazard of fire or explosion, or causes any deterioration of the secondary containment of the underground tank shall be reported by the operator to the local agency within 24 hours after the release has been detected or should have been detected. A full written report shall be transmitted by the owner or operator of the underground storage tanks within five working days of the occurrence of the release.

The local agency shall review the permit whenever there has been an unauthorized release or when it determines that the underground storage tank is unsafe. In determining whether to modify or terminate the permit, the local agency shall consider the age of the tank, the methods of containment, the methods of monitoring, the feasibility of any required repairs, the concentration of the hazardous substances stored in the tank, the severity of potential unauthorized releases, and the suitability of any other long-term preventive measures which would meet the requirements of this chapter.



(b) In cooperation with the Office of Emergency Services, the board shall submit an annual statewide report by county, to the Legislature, of all unauthorized releases, indicating for each unauthorized release the operator, the hazardous substance, the quantity of the unauthorized release, and the actions taken to abate the problem.

(c) The reporting requirements imposed by this section are in addition to any requirements which may be imposed by Sections 13271 and 13272 of the Water Code.

SEC. 17. Section 25284.5 of the Health and Safety Code is amended and renumbered to read:

25296. If there has been any unauthorized release, as defined in Section 25294 or subdivision (a) of Section 25295, from an underground storage tank containing motor vehicle fuel not under pressure, the permit holder may repair the tank once by an interior-coating process if the tank meets all of the following requirements:

(a) An ultrasonic test, or comparable test, has been conducted to determine the thickness of the storage tank. If the result of the test indicates that a serious corrosion problem exists with regard to the tank, as determined by the person conducting the test, the local agency may require additional corrosion protection for the tank or may deny the authorization to repair.

(b) A hydrostatic test is an alternative to the ultrasonic test in subdivision (a). If the result of the test indicates that a serious problem exists with regard to the integrity of the tank, as determined by the person conducting the test or the local agency, the local agency may require additional protection for the tank or may deny authorization for the repair.

(c) Following the repair, a vacuum test has been conducted with a result indexed at not more than 5.3 inches of mercury. This requirement shall not be applicable if technology is not available for testing the tank onsite using accepted engineering practices.

(d) Following the repair, the standard installation testing for requirements for underground storage tanks specified in Section 2-7.3 of the Flammable and Combustible Liquids Code, adopted by the National Fire Protection Association on November 20, 1981 (NFPA 30-1981), and published in the 1982 edition of the National Fire Code shall be followed.

(e) The material used to repair the tank by an interior-coating process is compatible with the motor vehicle fuel that is stored, as approved by the board by regulation.

(f) The material used to repair the tank by an interior-coating process is applied in accordance with nationally recognized engineering practices such as the American Petroleum Institute's recommended practice No. 1631 for the interior lining of existing underground storage tanks.

(g) The board may develop regulations, in consultation with the

State Fire Marshal, for the repair of underground storage tanks, and the standards in this section shall remain in effect until the adoption of these regulations.

SEC. 18. Section 25285 of the Health and Safety Code is amended and renumbered to read:

25297. The local agency may request the following agencies to utilize that agency's authority to remedy the effects of, and remove, any hazardous substance which has been released from an underground storage tank:

(a) The department which may take action pursuant to Chapter 6.8 (commencing with Section 25300) and, for this purpose, any unauthorized release shall be deemed a release as defined in Section 25320.

(b) A regional water quality control board may take action pursuant to Division 7 (commencing with Section 13000) of the Water Code and, for this purpose, the discharged hazardous substance shall be deemed a waste as defined in subdivision (d) of Section 13050.

SEC. 19. Section 25286 of the Health and Safety Code is amended and renumbered to read:

25298. (a) No person shall abandon an underground storage tank or close or temporarily cease operating an underground storage tank, except as provided in this section.

(b) An underground storage tank which is temporarily taken out of service, but which the operator intends to return to use, shall continue to be subject to all the permit, inspection, and monitoring requirements of this chapter, unless the operator complies with subdivision (c) for the period of time the underground tank is not in use.

(c) No person shall close an underground storage tank unless the person undertakes all of the following actions:

(1) Demonstrates to the local agency that all residual amounts of the hazardous substance or hazardous substances which were stored in the tank prior to its closure have been removed, properly disposed of, and neutralized.

(2) Adequately seals the tank to minimize any threat to the public safety and the possibility of water intrusion into, or runoff from, the tank.

(3) Provides for, and carries out, the maintenance of the tank as the local agency determines is necessary for the period of time the local agency requires.

(4) Demonstrates to the local agency that there has been no significant soil contamination resulting from a discharge in the area surrounding the underground storage tank or facility.

SEC. 20. Section 25287 of the Health and Safety Code is amended and renumbered to read:

25299. (a) Any operator of an underground storage tank is liable for a civil penalty of not less than five hundred dollars (\$500) or more

than five thousand dollars (\$5,000) per day for any of the following:

(1) Operates an underground storage tank which has not been issued a permit.

(2) Fails to monitor the underground storage tank, as required by the permit.

(3) Fails to maintain records, as required by Section 25286.

(4) Fails to report an unauthorized release, as required by Sections 25294 and 25295.

(5) Fails to properly close an underground storage tank, as required by Section 25298.

(b) Any owner of an underground storage tank is liable for a civil penalty of not less than five hundred dollars (\$500) or more than five thousand dollars (\$5,000) per day for any of the following:

(1) Failure to obtain a permit as specified by this chapter.

(2) Failure to repair an underground tank in accordance with this chapter.

(3) Abandonment or improper closure of any underground tank subject to this chapter.

(4) Knowing failure to take reasonable and necessary steps to assure compliance with this chapter by the operator of an underground tank.

(c) Any person who falsifies any monitoring records required by this chapter, or knowingly fails to report an unauthorized release, shall, upon conviction, be punished by a fine of not less than five thousand dollars (\$5,000) or more than ten thousand dollars (\$10,000), or by imprisonment in the county jail for not to exceed one year, or by both that fine and imprisonment.

(d) In determining both the civil and criminal penalties imposed pursuant to this section, the court shall consider all relevant circumstances, including, but not limited to, the extent of harm or potential harm caused by the violation, the nature of the violation and the period of time over which it occurred, the frequency of past violations, and the corrective action, if any, taken by the person who holds the permit.

(e) Penalties under this section are in addition to, and do not supersede or limit, any and all other legal remedies and penalties, civil or criminal, which may be applicable under other laws.

SEC. 21. Section 25288 of the Health and Safety Code is amended and renumbered to read:

25299.1. (a) Any city, county, or city and county which prior to January 1, 1984, has adopted an ordinance which, at a minimum meets the requirements set forth in Section 25291 and 25292, providing for double containment and monitoring of underground storage tanks, and under which permits are issued therefor, is exempt from the provisions of this chapter so long as the ordinance, as it may be amended, continues to meet the requirements of Sections 25291 and 25292.

Those local agencies which are exempt from this chapter pursuant

to this subdivision shall submit to the board the application form, the surcharge specified in subdivision (b) of Section 25287, and annual information specified by Section 25286, and shall submit a written report of any unauthorized release from an underground storage tank to the Office of Emergency Services within 10 working days from the time the local agency is notified of the unauthorized release. Every local agency exempted from this chapter, except a county of the fifth class and the cities within that county, shall, until January 1, 1990, collect and transmit to the board the surcharge specified in subdivision (b) of Section 25287.

(b) This chapter shall not be construed to limit or abridge the authority of any city, county, or city and county to adopt an ordinance requiring information, investigations, or inspections, or implementing and enforcing this chapter.

SEC. 22. Section 25288.1 of the Health and Safety Code is amended and renumbered to read:

25299.2. The Legislature hereby finds and declares that the provisions of this chapter are of statewide interest and concern and are intended to preempt any local regulations of underground storage tanks, which regulations are for the protection of the soil from contamination or the protection of the beneficial uses of waters of the state, and which conflict with these provisions, except as provided in Section 25299.1.

SEC. 23. Section 25288.2 of the Health and Safety Code is amended and renumbered to read:

25299.3. (a) The board shall develop regulations implementing the standards of Sections 25291, 25292, 25294, 25295, 25296, 25298, and 25299.4. These regulations shall be promulgated by the board by January 1, 1985. The board may adopt regulations implementing Sections 25286, 25287, and 25290, as it deems necessary.

(b) Until the board adopts regulations, any city, county, or city and county may implement the requirements of Section 25291 with regard to permits. Any underground storage tank or facility so permitted shall be deemed to be in compliance with the regulations of the board implementing that section. Any such tank installed within a city, county, or city and county which has not implemented Section 25291 prior to the adoption of regulations by the board shall be subject to the same requirements of this chapter as an underground storage tank installed prior to January 1, 1984.

SEC. 24. Section 25288.3 of the Health and Safety Code is amended and renumbered to read:

25299.4. (a) Any permitholder or permit applicant may apply to the board for a categorical variance from Section 25291 or 25292. A categorical variance is an alternative procedure which would be applicable to more than one local agency jurisdiction.

(1) The application shall include a description of the proposed alternative program, method, device, or process and a description of the region, area, or circumstances under which the variance would

apply.

(2) The board shall give notice to all affected cities, counties, and city and counties.

(3) The board shall issue a categorical variance from these sections if it determines, after investigation and at least two public hearings held in different areas of the state, as selected by the board, that the applicant has demonstrated by clear and convincing evidence that the proposed alternative will adequately protect the soil and the beneficial uses of water of the state from an unauthorized release. Any variance so issued shall prescribe the conditions the applicant is required to maintain and shall describe the alternative.

(4) The board shall modify or revoke a categorical variance upon a finding that the proposed alternative does not adequately protect the soil and the beneficial uses of water of the state from an unauthorized release.

(5) The board may remand the application to the appropriate regional board if it determines that the application falls within subdivision (c).

(6) The board may charge and collect from the applicant a fee sufficient to recover the reasonable costs of proceeding under this section.

(b) After January 1, 1984, any local agency may apply to the board for authority to implement design and construction standards for the containment of a hazardous substance in underground storage tanks which are in addition to those set forth in this chapter. The application shall include a description of the additional standards and a discussion of the need to implement them. The board shall approve the application if it finds, after an investigation and public hearing, that the local agency has demonstrated by clear and convincing evidence that the additional standards are necessary to adequately protect the soil and the beneficial uses of the waters of the state from unauthorized releases.

The board shall make its determination within six months of the date of application for authority to implement additional standards. If the board's determination upholds the application for authority to implement additional standards, the standards shall be effective as of the date of the determination. If the board's determination does not uphold the application, the additional standards shall not go into effect.

(c) Any permitholder or permit applicant may apply to the regional board having jurisdiction over the location of the permitholder or applicant's facility for a site-specific variance from Section 25291 or 25292. A site-specific variance is an alternative procedure which is applicable in one local agency jurisdiction. Prior to applying to the regional board, the permitholder shall first contact the local agency pursuant to paragraph (4).

(1) The regional board shall hold a public hearing 60 days after the completion of any documents required by the California

**Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code).**

(2) The regional board shall consider the local agency's and the city, county, or city and county's recommendations in rendering its decision. Failure of the local agency or city, county, or city and county to join in the variance application pursuant to paragraph (4) shall not affect the request of the applicant to proceed with the variance application.

(3) The regional board shall approve the variance if it finds, after investigation and public hearing, that the applicant has demonstrated by clear and convincing evidence either of the following:

(A) Because of the facility's special circumstances, not generally applicable to other facilities' property, including size, shape, design, topography, location, or surroundings, the strict application of Sections 25291 and 25292 is unnecessary to adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release.

(B) Strict application of the standards of Sections 25291 and 25292 would create practical difficulties not generally applicable to other facilities or property and that the proposed alternative will adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release.

(4) Before applying for a variance, the applicant shall contact the local agency to determine if a site-specific variance is required. If the local agency determines that a site-specific variance is required or does not act within 60 days, the applicant may proceed with the variance procedure in subdivision (a).

(5) At least 30 days before applying to the appropriate regional board, the applicant shall notify and request the city, county, or city and county to join the applicant in the variance application before the regional board.

(A) The city, county, or city and county shall provide notice of the receipt of that request to any person who has requested the notice.

(B) The local agency within the city, county, or city and county which has the jurisdiction for land use decisions shall have 30 days from completion of any documents required by the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) to act on the applicant's request to join the applicant.

(d) Applicants requesting a variance pursuant to this section shall pay a fee determined by the board to be necessary to recover the reasonable cost of administering this section.

**SEC. 25. Section 25289 of the Health and Safety Code is amended and renumbered to read:**

**25299.5. This chapter shall not be construed to limit or abridge the powers and duties granted to the State Department of Health Services by Chapter 6.5 (commencing with Section 25100) and**

Chapter 6.8 (commencing with Section 25300) or to the State Water Resources Control Board and each regional water quality control board by Division 7 (commencing with Section 13000) of the Water Code.

SEC. 26. Section 25299.6 is added to the Health and Safety Code, to read:

25299.6. The board shall conduct a study which analyzes the necessity of applying the standards of Sections 25291 and 25292 to the structures exempted by paragraph (4) of subdivision (r) of Section 25281. The board shall complete the study by July 1, 1985. After completing the study, the board shall review existing regulatory authority over these structures.

SEC. 27. If both this bill and Assembly Bill 3781 are enacted and become effective on January 1, 1985, and each bill amends Sections 25284, 25284.1, and 25284.5 of the Health and Safety Code, Sections 12, 13, and 17 of this bill shall not become operative.

SEC. 28. Notwithstanding Section 2231.5 of the Revenue and Taxation Code, this act does not contain a repealer, as required by that section; therefore, the provisions of this act shall remain in effect unless and until they are amended or repealed by a later enacted act.

SEC. 29. Notwithstanding Section 6 of Article XIII B of the California Constitution and Section 2231 or 2234 of the Revenue and Taxation Code, no appropriation is made by this act for the purpose of making reimbursement pursuant to these sections. It is recognized, however, that a local agency or school district may pursue any remedies to obtain reimbursement available to it under Chapter 3 (commencing with Section 2201) of Part 4 of Division 1 of that code.

3. Chapter 1537, Statutes of  
1984 (AB 3447, Sher) (trailer  
bill)



**Assembly Bill No. 3447**

**CHAPTER 1537**

**An act to amend Sections 25287, 25288, and 25288.2 of the Health and Safety Code, relating to hazardous substances.**

[Approved by Governor September 26, 1984. Filed with  
Secretary of State September 30, 1984 ]

**LEGISLATIVE COUNSEL'S DIGEST**

**AB 3447, Sher. Hazardous substances: underground storage.**

(1) Existing law requires every county to implement specified provisions regulating underground storage tanks and permits a city to implement these provisions. Existing law exempts certain cities and counties which enacted a specified ordinance prior to January 1, 1984, from requirements concerning the storage of hazardous substances in underground storage tanks and requires these cities and counties to submit certain forms to the State Water Resources Control Board.

Existing law also requires that a surcharge be included in the fee paid to a local agency by an applicant for an underground storage tank permit, and that this surcharge be transmitted to the board, for specified purposes. The operator of an underground storage tank is also subject to various civil penalties for designated violations.

This bill would permit these civil penalties to be levied and collected additionally by a city or county which is exempt from this chapter, and would, until January 1, 1990, require every city and county, except for Santa Clara County and every city therein, to collect and transmit this surcharge to the board. The bill would specifically require every city and county to undertake its regulatory responsibilities in these regards without undue delay after the board adopts specified regulations and to implement these provisions by July 1, 1985. The bill would also make conforming changes.

(2) Article XIII B of the California Constitution and Sections 2231 and 2234 of the Revenue and Taxation Code require the state to reimburse local agencies and school districts for certain costs mandated by the state. Other provisions require the Department of Finance to review statutes disclaiming these costs and provide, in certain cases, for making claims to the State Board of Control for reimbursement.

The bill would impose a state-mandated local program by requiring cities and counties which are exempted from the provisions concerning the regulation of underground storage tanks to implement specified provisions of law concerning the underground storage of hazardous substances.

However, the bill would provide that no appropriation is made and no reimbursement is required by this act for a specified reason.

*The people of the State of California do enact as follows:*

**SECTION 1.** Section 25287 of the Health and Safety Code is amended to read:

**25287.** (a) Any operator of an underground storage tank shall be liable for a civil penalty of not less than five hundred dollars (\$500) or more than five thousand dollars (\$5,000) per day for any of the following:

(1) Operates an underground storage tank which has not been issued a permit.

(2) Fails to monitor the underground storage tank, as required by the permit.

(3) Fails to maintain records, as required by Section 25283.2.

(4) Fails to report an unauthorized release, as required by Sections 25284.3 and 25284.4.

(5) Fails to properly close an underground storage tank, as required by Section 25286.

(b) Any owner of an underground storage tank shall be liable for a civil penalty of not less than five hundred dollars (\$500) or more than five thousand dollars (\$5,000) per day for any of the following:

(1) Failure to obtain a permit as specified by this chapter.

(2) Failure to repair an underground tank in accordance with the provisions of this chapter.

(3) Abandonment or improper closure of any underground tank subject to the provisions of this chapter.

(4) Knowing failure to take reasonable and necessary steps to assure compliance with this chapter by the operator of an underground tank.

(c) Any person who falsifies any monitoring records required by this chapter, or knowingly fails to report an unauthorized release, shall, upon conviction, be punished by a fine of not less than five thousand dollars (\$5,000) or more than ten thousand dollars (\$10,000), or by imprisonment in the county jail for not to exceed one year, or by both that fine and imprisonment.

(d) In determining both the civil and criminal penalties imposed pursuant to this section, the court shall consider all relevant circumstances, including, but not limited to, the extent of harm or potential harm caused by the violation, the nature of the violation and the period of time over which it occurred, the frequency of past violations, and the corrective action, if any, taken by the person who holds the permit.

(e) Penalties under this section are in addition to, and do not supersede or limit, any and all other legal remedies and penalties, civil or criminal, which may be applicable under other laws.

(f) In addition to the state and any city or county implementing this chapter pursuant to Section 25282, a city or county specified in subdivision (a) of Section 25288 may also levy and collect penalties under this section.

**SEC. 2.** Section 25288 of the Health and Safety Code is amended to read:

**25288.** (a) Any city or county which prior to January 1, 1984, adopted an ordinance which, at a minimum meets the requirements set forth in Sections 25284 and 25284.1, including, but not limited to, the provisions providing for double containment and monitoring of underground storage tanks, and under which permits are issued therefor, is exempt from this chapter so long as the ordinance, as it may be amended, continues to meet the requirements of Sections 25284 and 25284.1.

Those cities and counties which are exempted from this chapter pursuant to this subdivision shall submit to the board the application form, and annual information specified by Section 25283.2 and shall submit a written report of any unauthorized release from an underground storage tank to the Office of Emergency Services within 10 working days from the time the local agency is notified of the unauthorized release. Every city and county, except a county of the fifth class and the cities within that county, shall, until January 1, 1990, collect and transmit to the board the surcharge specified in subdivision (b) of Section 25283.3.

(b) This chapter shall not be construed to limit or abridge the authority of any city or county, to adopt an ordinance requiring information, investigations, or inspections, or implementing and enforcing this chapter.

**SEC. 3.** Section 25288.2 of the Health and Safety Code is amended to read:

**25288.2.** (a) The board shall develop regulations implementing the standards of Sections 25284, 25284.1, 25284.3, 25284.4, 25284.5, 25286, and 25288.3. These regulations shall be promulgated by the board by January 1, 1985. The board may adopt regulations implementing Sections 25283.2, 25283.3, and 25283.6 as it deems necessary.

(b) Until the board adopts regulations, any city or county may implement Section 25284 with regard to permits. Any tank or facility so permitted shall be deemed to be in compliance with the regulations of the board implementing that section. Any underground storage tank installed within a city or county which has not implemented Section 25284 prior to the adoption of regulations by the board shall be subject to the same requirements of this chapter as an underground storage tank installed prior to January 1, 1984.

Every city and county shall, without undue delay, undertake its regulatory responsibilities under this chapter after the board adopts its regulations pursuant to subdivision (a). Every city and county shall implement this chapter by no later than July 1, 1985.

**SEC. 4.** No appropriation is made and no reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution or Section 2231 or 2234 of the Revenue and

**Assembly Bill No. 3447**

**CHAPTER 1537**

**An act to amend Sections 25287, 25288, and 25288.2 of the Health and Safety Code, relating to hazardous substances.**

[Approved by Governor September 26, 1984. Filed with Secretary of State September 30, 1984.]

**LEGISLATIVE COUNSEL'S DIGEST**

**AB 3447, Sher. Hazardous substances: underground storage.**

(1) Existing law requires every county to implement specified provisions regulating underground storage tanks and permits a city to implement these provisions. Existing law exempts certain cities and counties which enacted a specified ordinance prior to January 1, 1984, from requirements concerning the storage of hazardous substances in underground storage tanks and requires these cities and counties to submit certain forms to the State Water Resources Control Board.

Existing law also requires that a surcharge be included in the fee paid to a local agency by an applicant for an underground storage tank permit, and that this surcharge be transmitted to the board, for specified purposes. The operator of an underground storage tank is also subject to various civil penalties for designated violations.

This bill would permit these civil penalties to be levied and collected additionally by a city or county which is exempt from this chapter, and would, until January 1, 1990, require every city and county, except for Santa Clara County and every city therein, to collect and transmit this surcharge to the board. The bill would specifically require every city and county to undertake its regulatory responsibilities in these regards without undue delay after the board adopts specified regulations and to implement these provisions by July 1, 1985. The bill would also make conforming changes.

(2) Article XIII B of the California Constitution and Sections 2231 and 2234 of the Revenue and Taxation Code require the state to reimburse local agencies and school districts for certain costs mandated by the state. Other provisions require the Department of Finance to review statutes disclaiming these costs and provide, in certain cases, for making claims to the State Board of Control for reimbursement.

The bill would impose a state-mandated local program by requiring cities and counties which are exempted from the provisions concerning the regulation of underground storage tanks to implement specified provisions of law concerning the underground storage of hazardous substances.

However, the bill would provide that no appropriation is made and no reimbursement is required by this act for a specified reason.

*The people of the State of California do enact as follows:*

**SECTION 1.** Section 25287, of the Health and Safety Code is amended to read:

**25287.** (a) Any operator of an underground storage tank shall be liable for a civil penalty of not less than five hundred dollars (\$500) or more than five thousand dollars (\$5,000) per day for any of the following:

(1) Operates an underground storage tank which has not been issued a permit.

(2) Fails to monitor the underground storage tank, as required by the permit.

(3) Fails to maintain records, as required by Section 25283.2.

(4) Fails to report an unauthorized release, as required by Sections 25284.3 and 25284.4.

(5) Fails to properly close an underground storage tank, as required by Section 25286.

(b) Any owner of an underground storage tank shall be liable for a civil penalty of not less than five hundred dollars (\$500) or more than five thousand dollars (\$5,000) per day for any of the following:

(1) Failure to obtain a permit as specified by this chapter.

(2) Failure to repair an underground tank in accordance with the provisions of this chapter.

(3) Abandonment or improper closure of any underground tank subject to the provisions of this chapter.

(4) Knowing failure to take reasonable and necessary steps to assure compliance with this chapter by the operator of an underground tank.

(c) Any person who falsifies any monitoring records required by this chapter, or knowingly fails to report an unauthorized release, shall, upon conviction, be punished by a fine of not less than five thousand dollars (\$5,000) or more than ten thousand dollars (\$10,000), or by imprisonment in the county jail for not to exceed one year, or by both that fine and imprisonment.

(d) In determining both the civil and criminal penalties imposed pursuant to this section, the court shall consider all relevant circumstances, including, but not limited to, the extent of harm or potential harm caused by the violation, the nature of the violation and the period of time over which it occurred, the frequency of past violations, and the corrective action, if any, taken by the person who holds the permit.

(e) Penalties under this section are in addition to, and do not supersede or limit, any and all other legal remedies and penalties, civil or criminal, which may be applicable under other laws.

(f) In addition to the state and any city or county implementing this chapter pursuant to Section 25282, a city or county specified in subdivision (a) of Section 25288 may also levy and collect penalties under this section.

**SEC. 2.** Section 25288 of the Health and Safety Code is amended to read:

**25288.** (a) Any city or county which prior to January 1, 1984, adopted an ordinance which, at a minimum meets the requirements set forth in Sections 25284 and 25284.1, including, but not limited to, the provisions providing for double containment and monitoring of underground storage tanks, and under which permits are issued therefor, is exempt from this chapter so long as the ordinance, as it may be amended, continues to meet the requirements of Sections 25284 and 25284.1.

Those cities and counties which are exempted from this chapter pursuant to this subdivision shall submit to the board the application form, and annual information specified by Section 25283.2 and shall submit a written report of any unauthorized release from an underground storage tank to the Office of Emergency Services within 10 working days from the time the local agency is notified of the unauthorized release. Every city and county, except a county of the fifth class and the cities within that county, shall, until January 1, 1990, collect and transmit to the board the surcharge specified in subdivision (b) of Section 25283.3.

(b) This chapter shall not be construed to limit or abridge the authority of any city or county, to adopt an ordinance requiring information, investigations, or inspections, or implementing and enforcing this chapter.

**SEC. 3.** Section 25288.2 of the Health and Safety Code is amended to read:

**25288.2.** (a) The board shall develop regulations implementing the standards of Sections 25284, 25284.1, 25284.3, 25284.4, 25284.5, 25286, and 25288.3. These regulations shall be promulgated by the board by January 1, 1985. The board may adopt regulations implementing Sections 25283.2, 25283.3, and 25283.6 as it deems necessary.

(b) Until the board adopts regulations, any city or county may implement Section 25284 with regard to permits. Any tank or facility so permitted shall be deemed to be in compliance with the regulations of the board implementing that section. Any underground storage tank installed within a city or county which has not implemented Section 25284 prior to the adoption of regulations by the board shall be subject to the same requirements of this chapter as an underground storage tank installed prior to January 1, 1984.

Every city and county shall, without undue delay, undertake its regulatory responsibilities under this chapter after the board adopts its regulations pursuant to subdivision (a). Every city and county shall implement this chapter by no later than July 1, 1985.

**SEC. 4.** No appropriation is made and no reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution or Section 2231 or 2234 of the Revenue and

#### 4. Chapter 1584, Statutes of 1984 (AB 3781, Sher) (trailer bill)

## **Assembly Bill No. 3781**

### **CHAPTER 1584**

**An act to amend and renumber Sections 25284, 25284.1, 25284.5, 25287, 25288, and 25288.2 of the Health and Safety Code, relating to hazardous substances.**

**[Approved by Governor September 29, 1984. Filed with Secretary of State September 30, 1984.]**

#### **LEGISLATIVE COUNSEL'S DIGEST**

**AB 3781, Sher. Underground storage tanks.**

(1) Existing law requires that all underground storage tanks installed after January 1, 1984, comply with certain requirements concerning design, construction, monitoring systems, and drainage.

This bill would require that additional tests be conducted on the tank prior to certain uses and would provide that a tank with a primary container constructed with a double complete shell meets the requirements for a primary and secondary containment if specified conditions are met. The bill would also require that a tank which is designed to maintain a water level in the secondary containment be equipped and inspected in a specified manner.

(2) Existing law requires that all underground storage tanks installed on or before January 1, 1984, and used for the storage of hazardous substances have a monitoring system installed before January 1, 1985, and have a means for inspection. Existing law authorizes a local agency to require alternative methods of monitoring. It also authorizes the State Water Resources Control Board to develop regulations specifying monitoring alternatives.

This bill would revise the requirements for the monitoring alternatives, including those for tanks containing motor vehicle fuels.

(3) Existing law authorizes the permitholder of an underground storage tank containing motor vehicle fuel not under pressure to repair the tank, after an unauthorized release from the tank, with an interior-coating process once, if the tank meets specified requirements, including undergoing either an ultrasonic or a hydrostatic test. Existing law also requires that certain installation tests be followed after the repair is made.

This bill would instead require that the tank be tested by an ultrasonic test, certified by a special inspector pursuant to specified criteria, or tested by using a test approved by the board. The bill would additionally require the tank to be tested by a specified precision test and would delete the requirements for the installation tests. The bill would permit the board to include an interior-coating bonding test requirement in regulations for the repair of those tanks and would require the board, by regulation, to direct that monitoring systems, as defined, be installed when such a repair is made.



(4) Existing law requires every county to implement the provisions specified above regulating underground storage tanks and permits a city to implement these provisions. Existing law exempts certain cities and counties which enacted a specified ordinance prior to January 1, 1984, from requirements concerning the storage of hazardous substances in underground storage tanks and requires these cities and counties to submit certain forms to the State Water Resources Control Board.

Existing law also requires that a surcharge be included in the fee paid to a local agency by an applicant for an underground storage tank permit, and that this surcharge be transmitted to the board, for specified purposes. The operator of an underground storage tank is also subject to various civil penalties for designated violations.

This bill would permit these civil penalties to be levied and collected additionally by a city or county which is exempt from this chapter, and would, until January 1, 1990, require these exempted local agencies, except for Santa Clara County and every city therein, to collect and transmit this surcharge to the board. The bill would specifically require every city and county to undertake its regulatory responsibilities in these regards without undue delay after the board adopts specified regulations and to implement these provisions by July 1, 1985. The bill would also make conforming changes.

These provisions would become operative only if this bill is enacted after AB 3565.

(5) This bill would incorporate changes to Sections 25284, 25284.1, and 25284.5 of the Health and Safety Code proposed by AB 3565, which would become operative only if this bill is enacted after AB 3565.

(6) The bill would provide that, notwithstanding Section 2231.5 of the Revenue and Taxation Code, this act does not contain a repealer, as required by that section; therefore, the provisions of the act would remain in effect unless and until they are amended or repealed by a later enacted act.

(7) Article XIII B of the California Constitution and Sections 2231 and 2234 of the Revenue and Taxation Code require the state to reimburse local agencies and school districts for certain costs mandated by the state. Other provisions require the Department of Finance to review statutes disclaiming these costs and provide, in certain cases, for making claims to the State Board of Control for reimbursement.

This bill would impose a state-mandated local program by imposing additional requirements upon cities, counties, and districts which operate underground storage tanks or which administer specified provisions.

The bill would provide that no appropriation is made by this act for the purpose of making reimbursement pursuant to the constitutional mandate or Section 2231 or 2234, but would recognize that local agencies and school districts may pursue their other

available remedies to seek reimbursement for these costs.

*The people of the State of California do enact as follows:*

**SECTION 1.** Section 25284 of the Health and Safety Code is amended to read:

**25284.** Every underground storage tank installed after January 1, 1984, shall meet all of the following requirements:

(a) Be designed and constructed to provide primary and secondary levels of containment of the hazardous substances stored in it in accordance with the following performance standards:

(1) Primary containment shall be product-tight.

(2) Secondary containment shall be constructed to prevent structural weakening as a result of contact with any released hazardous substances, and also shall be capable of storing the hazardous substances for the maximum anticipated period of time necessary for the recovery of any released hazardous substance.

(3) In the case of an installation with one primary container, the secondary containment shall be large enough to contain at least 100 percent of the volume of the primary tank.

(4) In the case of multiple primary tanks, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary tank placed in it, or 10 percent of the aggregate internal volume of all primary tanks, whichever is greater.

(5) If the facility is open to rainfall, then the secondary containment must be able to additionally accommodate the volume of a 24-hour rainfall as determined by a 100-year storm history.

(6) Single-walled containers do not fulfill the requirement of an underground storage tank providing both a primary and a secondary containment. However, an underground storage tank with a primary container constructed with a double complete shell shall be deemed to have met the requirements for primary and secondary containment set forth in this section if the outer shell is constructed primarily of nonearthen materials, including, but not limited to, concrete, steel, and plastic, which provide structural support; a continuous leak detection system with alarm is located in the space between the shells; the system is capable of detecting the entry of hazardous substances from the inner container into the space; and the system is capable of detecting water intrusion into the space from the outer shell.

(7) The design and construction of underground storage tanks for motor vehicle fuels storage need not meet the requirements of paragraphs (1) to (6), inclusive, if the primary containment construction is of glass fibre reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic, any such alternative primary containment is installed in conjunction with a system that will intercept and direct a leak from any part of the tank to a monitoring well to detect any release of motor vehicle fuels

stored in the tank and which is designed to provide early leak detection, response, and to protect groundwater from releases, and if the monitoring is in accordance with the alternative method identified in paragraph (4) of subdivision (b) of Section 25284.1. Pressurized piping systems connected to underground storage tanks used for the storage of motor vehicle fuels and monitored in accordance with paragraph (4) of subdivision (b) of Section 25284.1 also meet the requirements of this subdivision.

(b) Be designed and constructed with a monitoring system capable of detecting the entry of the hazardous substance stored in the primary containment into the secondary containment. If water could intrude into the secondary containment, a means of monitoring for water intrusion and for safely removing the water shall also be provided.

(c) When required by the local agency, a means of overflow protection for any primary tank, including an overflow prevention device or an attention-getting higher level alarm, or both. Primary tank filling operations of underground storage tanks containing motor vehicle fuels which are visually monitored and controlled by a facility operator satisfy the requirements of this subdivision.

(d) Different substances that in combination may cause a fire or explosion, or the production of flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container, shall be separated in both the primary and secondary containment so as to avoid potential intermixing.

(e) If water could enter into the secondary containment by precipitation or infiltration, the facility shall contain a means of removing the water by the owner or operator. This removal system shall also prevent uncontrolled removal of this water and provide for a means of analyzing the removed water for hazardous substance contamination and a means of disposing of the water, if so contaminated, at an authorized disposal facility.

(f) Before the underground storage tank is covered, enclosed, or placed in use, the standard installation testing for requirements for underground storage systems specified in Section 2-7 of the Flammable and Combustible Liquids Code, adopted by the National Fire Protection Association, (NFPA 30) as amended and published in the respective edition of the Uniform Fire Code, shall be followed.

(g) Before the underground storage tank is placed in service, the underground storage systems shall be tested in operating condition using a precision test as defined in National Fire Protection Association Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids," as amended, for proving the integrity of an underground storage tank.

(h) If the underground storage tank is designed to maintain a water level in the secondary containment, the tank shall be equipped with a safe method of removing any excess water to a holding facility and the owner or operator shall inspect the holding facility monthly

for the presence of excess water overflow. If excess water is present in the holding facility, the permitholder shall provide a means to analyze the water for hazardous substance contamination and a means to dispose of the water, if so contaminated, at an authorized disposal facility.

**SEC. 2.** Section 25284 of the Health and Safety Code is amended and renumbered to read:

**25291.** Every underground storage tank installed after January 1, 1984, shall meet all of the following requirements:

(a) Be designed and constructed to provide primary and secondary levels of containment of the hazardous substances stored in it in accordance with the following performance standards:

(1) Primary containment shall be product-tight.

(2) Secondary containment shall be constructed to prevent structural weakening as a result of contact with any released hazardous substances, and also shall be capable of storing the hazardous substances for the maximum anticipated period of time necessary for the recovery of any released hazardous substance.

(3) In the case of an installation with one primary container, the secondary containment shall be large enough to contain at least 100 percent of the volume of the primary tank.

(4) In the case of multiple primary tanks, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary tank placed in it, or 10 percent of the aggregate internal volume of all primary tanks, whichever is greater.

(5) If the facility is open to rainfall, then the secondary containment shall be able to additionally accommodate the volume of a 24-hour rainfall as determined by a 100-year storm history.

(6) Single-walled containers do not fulfill the requirement of an underground storage tank providing both a primary and a secondary containment. However, an underground storage tank with a primary container constructed with a double complete shell shall be deemed to have met the requirements for primary and secondary containment set forth in this section if the outer shell is constructed primarily of nonearthen materials, including, but not limited to, concrete, steel, and plastic, which provide structural support and a continuous leak detection system with alarm is located in the space between the shells; the system is capable of detecting the entry of hazardous substances from the inner container into the space; and the system is capable of detecting water intrusion into the space from the outer shell.

(7) The design and construction of underground storage tanks for motor vehicle fuels storage need not meet the requirements of paragraphs (1) to (6), inclusive, if all of the following conditions exist:

(A) The primary containment construction is of glass fiber reinforced plastic, cathodically protected steel, or steel clad with glass fiber reinforced plastic.

(B) Any alternative primary containment is installed in

conjunction with a system that will intercept and direct a leak from any part of the tank to a monitoring well to detect any release of motor vehicle fuels stored in the tank.

(C) The system designed to provide early leak detection and response, and to protect the groundwater from releases.

(D) The monitoring is in accordance with the alternative method identified in paragraph (3) of subdivision (b) of Section 25292.

(E) Pressurized piping systems connected to underground storage tanks used for the storage of motor vehicle fuels and monitored in accordance with paragraph (3) of subdivision (b) of Section 25292 also meet the requirements of this subdivision provided that the tank meets the conditions of subparagraphs (A) to (D), inclusive.

(b) Be designed and constructed with a monitoring system capable of detecting the entry of the hazardous substance stored in the primary containment into the secondary containment. If water could intrude into the secondary containment, a means of monitoring for water intrusion and for safely removing the water shall also be provided.

(c) When required by the local agency, a means of overfill protection for any primary tank, including an overfill prevention device or an attention-getting higher level alarm, or both. Primary tank filling operations of underground storage tanks containing motor vehicle fuels which are visually monitored and controlled by a facility operator satisfy the requirements of this subdivision.

(d) If different substances are stored in the same tank and in combination may cause a fire or explosion, or the production of flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container, then they shall be separated in both the primary and secondary containment so as to avoid potential intermixing.

(e) If water could enter into the secondary containment by precipitation or infiltration, the facility shall contain a means of removing the water by the owner or operator. This removal system shall also prevent uncontrolled removal of this water and provide for a means of analyzing the removed water for hazardous substance contamination and a means of disposing of the water, if so contaminated, at an authorized disposal facility.

(f) Before the underground storage tank is covered, enclosed, or placed in use, the standard installation testing for requirements for underground storage systems specified in Section 2-7 of the Flammable and Combustible Liquids Code, adopted by the National Fire Protection Association, (NFPA 30) as amended and published in the respective edition of the Uniform Fire Code, shall be followed.

(g) Before the underground storage tank is placed in service, the underground storage systems shall be tested in operating condition using a precision test as defined in National Fire Protection Association Pamphlet 329, "Recommended Practice for Handling

Underground Leakage of Flammable and Combustible Liquids," as amended, for proving the integrity of an underground storage tank.

(h) If the underground storage tank is designed to maintain a water level in the secondary containment, the tank shall be equipped with a safe method of removing any excess water to a holding facility and the owner or operator shall inspect the holding facility monthly for the presence of excess water overflow. If excess water is present in the holding facility, the permitholder shall provide a means to analyze the water for hazardous substance contamination and a means to dispose of the water, if so contaminated, at an authorized disposal facility.

SEC. 3. Section 25284.1 of the Health and Safety Code is amended to read:

25284.1. For every underground storage tank installed on or before January 1, 1984, and used for the storage of hazardous substances, all of the following actions shall be taken:

(a) On or before January 1, 1985, the owner shall outfit the facility with a monitoring system capable of detecting unauthorized releases of any hazardous substances stored in the facility, and thereafter, the operator shall monitor each facility, based on materials stored and the type of monitoring installed.

(b) Provide a means for visual inspection of the tank, wherever practical, for the purpose of the monitoring required by subdivision (a). Alternative methods of monitoring the tank on a monthly or more frequent basis may be required by the local agency, consistent with the regulations of the board.

The alternative monitoring methods include, but are not limited to, the following methods:

(1) Precision testing as defined in National Fire Protection Association Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids," as amended, for proving the integrity of an underground storage tank and piping system at time intervals specified by the board.

(2) A groundwater monitoring well or wells which are downgradient and adjacent to the underground storage tank, vapor analysis within a well where appropriate, and analysis of soil borings at the time of initial installation of the well. The board shall develop regulations specifying monitoring alternatives. The local agency, or any other public agency specified by the local agency, shall approve the location and number of wells, the depth of wells, and the sampling frequency, pursuant to these regulations.

(3) A continuous leak detection and alarm system which is located in monitoring wells adjacent to an underground storage tank and which is approved by the local agency.

(4) For monitoring tanks containing motor vehicle fuels, daily gauging and inventory reconciliation by the operator, if all of the following requirements are met:

(A) Inventory records are kept on file for one year and are

reviewed quarterly.

(B) The tank is tested, using the precision test as defined by the National Fire Protection Association Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids," as amended, for proving the integrity of an underground storage tank at time intervals specified by the board and whenever there is a shortage greater than the amount which the board shall specify by regulation.

(C) If a pressurized pump system is connected to the tank, the system has a leak detection device to monitor for leaks in the piping.

SEC. 4. Section 25284.1 of the Health and Safety Code is amended and renumbered to read:

25292. For every underground storage tank installed on or before January 1, 1984, and used for the storage of hazardous substances, the following actions shall be taken:

(a) On or before July 1, 1985, the owner shall outfit the facility with a monitoring system capable of detecting unauthorized releases of any hazardous substances stored in the facility, and thereafter, the operator shall monitor each facility, based on materials stored and the type of monitoring installed.

(b) Provide a means for visual inspection of the tank, wherever practical, for the purpose of the monitoring required by subdivision (a). Alternative methods of monitoring the tank on a monthly, or more frequent basis, may be required by the local agency, consistent with the regulations of the board.

The alternative monitoring methods include, but are not limited to, the following methods:

(1) Precision testing as defined in National Fire Protection Association Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids," as amended, for proving the integrity of an underground storage tank and piping system at time intervals specified by the board.

(2) A groundwater monitoring well or wells which are downgradient and adjacent to the underground storage tank, vapor analysis within a well where appropriate, and analysis of soil borings at the time of initial installation of the well.

(3) A continuous leak detection and alarm system which is located in monitoring wells adjacent to an underground storage tank and which is approved by the local agency.

(4) For monitoring tanks containing motor vehicle fuels, daily gauging and inventory reconciliation by the operator, if all of the following requirements are met:

(A) Inventory records are kept on file for one year and are reviewed quarterly.

(B) The tank is tested, using the precision test as defined by the National Fire Protection Association Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Solids," as amended, for proving the integrity of an

underground storage tank at time intervals specified by the board and whenever there is a shortage greater than the amount which the board shall specify by regulation.

(C) If a pressurized pump system is connected to the tank system, the system has a leak detection device to monitor for leaks in the piping.

(c) The board shall develop regulations specifying monitoring alternatives. The local agency, or any other public agency specified by the local agency, shall approve the location and number of wells, the depth of wells, and the sampling frequency, pursuant to these regulations.

**SEC. 5.** Section 25284.5 of the Health and Safety Code is amended to read:

**25284.5.** (a) If there has been any unauthorized release, as defined in subdivision (a) of Section 25284.4, from an underground storage tank containing motor vehicle fuel not under pressure, the permit holder may repair the tank once by an interior-coating process if the tank meets all of the following requirements:

(1) One of the following tests has been conducted to determine the thickness of the storage tank:

(A) An ultrasonic test.

(B) Certification by a special inspector that the shell will provide structural support for the interior lining. The special inspector shall make this certification by entering and inspecting the entire interior surface of the tank and shall base this certification upon the following procedures and criteria:

(i) If the tank is made of fiberglass, the tank is cleaned so that no residue remains on the tank wall surface. The special inspector shall take interior diameter measurements and, if the cross-section has compressed more than 1 percent of the original diameter, the tank shall not be certified and shall also not be returned to service. The special inspector shall also conduct an interior inspection to identify any area where compression or tension cracking is occurring and shall determine whether additional glass fiber reinforcing is required for certification before the tank may be lined.

(ii) If the tank is made of steel, the tank interior surface shall be abrasive blasted completely free of scale, rust, and foreign matter, as specified in the American Petroleum Institute's recommended practice 16-31, relating to white metal blasting. The special inspection shall sound any perforations or areas showing corrosion pitting with a brass ballpeen hammer to enlarge the perforation or break through a potentially thin steel area. Tanks that have any of the following defects shall not be certified or returned to service:

(a) A tank which has an open seam or a split longer than three inches.

(b) A tank which has a perforation larger than one and one-half inches in diameter, or a gauging opening larger than two and one-half inches in diameter.



- (c) A tank with five or more perforations.
- (d) A tank with 20 or more perforations in a 500 square foot area.
- (e) A tank with a perforation larger than one-half inch.

(C) A test approved by the board as comparable to the tests specified in subparagraph (A) or (B). If the person conducting the test determines that the test results indicate that the tank has a serious corrosion problem, the local agency may require additional corrosion protection for the tank or may prohibit the permitholder from making the repair.

(2) The material used to repair the tank by an interior-coating process is compatible with the motor vehicle fuel that is stored, as approved by the board by regulation.

(3) The material used to repair the tank by an interior-coating process is applied in accordance with nationally recognized engineering practices, such as the American Petroleum Institute's recommended practice No. 1631 for the interior lining of existing underground storage tanks.

(4) Before the tank is placed back into service following the repair, the tank is tested in the operating condition using the precision test defined by the National Fire Protection Association Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids," as amended, for proving the integrity of an underground storage tank.

(b) The board may adopt regulations, in consultation with the State Fire Marshal, for the repair of underground storage tanks, which may include, but are not limited to, a requirement that a test be conducted to determine whether the interior-coating process has bonded to the wall of the tank. The standards specified in this section shall remain in effect until the adoption of these regulations.

(c) The board shall, by regulation, require that monitoring systems be installed when a repair is made pursuant to subdivision

(a). For purposes of this subdivision, "monitoring system" means a continuous leak detection and alarm system which is located in monitoring wells adjacent to an underground storage tank and which is approved by the board.

(d) If there has not been an unauthorized release, as defined in subdivision (a) of Section 25284.4, from an underground storage tank containing motor vehicle fuel not under pressure, the permitholder may line the interior of the tank as a preventative measure. If an unauthorized release occurs from a tank which was lined as a preventative measure, the permitholder shall not reline the tank again.

SEC. 6. Section 25284.5 of the Health and Safety Code is amended and renumbered to read:

25296. (a) If there has been any unauthorized release, as defined in Section 25294 or subdivision (a), of Section 25295, from an underground storage tank containing motor vehicle fuel not under pressure, the permitholder may repair the tank once by an

interior-coating process if the tank meets all of the following requirements:

(1) One of the following tests has been conducted to determine the thickness of the storage tank:

(A) An ultrasonic test.

(B) Certification by a special inspector that the shell will provide structural support for the interior lining. The special inspector shall make this certification by entering and inspecting the entire interior surface of the tank and shall base this certification upon the following procedures and criteria:

(i) If the tank is made of fiberglass, the tank is cleaned so that no residue remains on the tank wall surface. The special inspector shall take interior diameter measurements and, if the cross-section has compressed more than 1 percent of the original diameter, the tank shall not be certified and shall also not be returned to service. The special inspector shall also conduct an interior inspection to identify any area where compression or tension cracking is occurring and shall determine whether additional glass fiber reinforcing is required for certification before the tank may be lined.

(ii) If the tank is made of steel, the tank interior surface shall be abrasive blasted completely free of scale, rust, and foreign matter, as specified in the American Petroleum Institute's recommended practice 16-31, relating to white metal blasting. The special inspection shall sound any perforations or areas showing corrosion pitting with a brass ballpeen hammer to enlarge the perforation or break through a potentially thin steel area. Tanks that have any of the following defects shall not be certified or returned to service:

(a) A tank which has an open seam or a split longer than three inches.

(b) A tank which has a perforation larger than one and one-half inches in diameter, or a gauging opening larger than two and one-half inches in diameter.

(c) A tank with five or more perforations.

(d) A tank with 20 or more perforations in a 500 square foot area.

(e) A tank with a perforation larger than one-half inch.

(C) A test approved by the board as comparable to the tests specified in subparagraph (A) or (B).

If the person conducting the test determines that the test results indicate that the tank has a serious corrosion problem, the local agency may require additional corrosion protection for the tank or may prohibit the permitholder from making the repair.

(2) The material used to repair the tank by an interior-coating process is compatible with the motor vehicle fuel that is stored, as approved by the board by regulation.

(3) The material used to repair the tank by an interior-coating process is applied in accordance with nationally recognized engineering practices such as the American Petroleum Institute's recommended practice No. 1631 for the interior lining of existing

underground storage tanks.

(4) Before the tank is placed back into service following the repair, the tank is tested in the operating condition using the precision test defined by the National Fire Protection Association Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids," as amended, for proving the integrity of an underground storage tank.

(b) The board may adopt regulations, in consultation with the State Fire Marshal, for the repair of underground storage tanks, which may include, but are not limited to, a requirement that a test be conducted to determine whether the interior-coating process has bonded to the wall of the tank. The standards specified in subdivision (a) shall remain in effect until the adoption of these regulations.

(c) The board shall, by regulation, require that monitoring systems be installed when a repair is made pursuant to this section. For purposes of this subdivision, "monitoring system" means a continuous leak detection and alarm system which is located in monitoring wells adjacent to an underground storage tank and which is approved by the board.

(d) If there has not been an unauthorized release, as defined in subdivision (a) of Section 25295, from an underground storage tank containing motor vehicle fuel not under pressure, the permitholder may line the interior of the tank as a preventative measure. If an unauthorized release occurs from a tank which was lined as a preventative measure, the permitholder shall not reline the tank again.

SEC. 7. Section 25287 of the Health and Safety Code is amended and renumbered to read:

25299. (a) Any operator of an underground storage tank shall be liable for a civil penalty of not less than five hundred dollars (\$500) or more than five thousand dollars (\$5,000) per day for any of the following:

(1) Operates an underground storage tank which has not been issued a permit.

(2) Fails to monitor the underground storage tank, as required by the permit.

(3) Fails to maintain records, as required by Section 25286.

(4) Fails to report an unauthorized release, as required by Sections 25294 and 25295.

(5) Fails to properly close an underground storage tank, as required by Section 25298.

(b) Any owner of an underground storage tank shall be liable for a civil penalty of not less than five hundred dollars (\$500) or more than five thousand dollars (\$5,000) per day for any of the following:

(1) Failure to obtain a permit as specified by this chapter.

(2) Failure to repair an underground tank in accordance with the provisions of this chapter.

(3) Abandonment or improper closure of any underground tank

subject to the provisions of this chapter.

(4) Knowing failure to take reasonable and necessary steps to assure compliance with this chapter by the operator of an underground tank.

(c) Any person who falsifies any monitoring records required by this chapter, or knowingly fails to report an unauthorized release, shall, upon conviction, be punished by a fine of not less than five thousand dollars (\$5,000) or more than ten thousand dollars (\$10,000), or by imprisonment in the county jail for not to exceed one year, or by both that fine and imprisonment.

(d) In determining both the civil and criminal penalties imposed pursuant to this section, the court shall consider all relevant circumstances, including, but not limited to, the extent of harm or potential harm caused by the violation, the nature of the violation and the period of time over which it occurred, the frequency of past violations, and the corrective action, if any, taken by the person who holds the permit.

(e) Penalties under this section are in addition to, and do not supersede or limit, any and all other legal remedies and penalties, civil or criminal, which may be applicable under other laws.

(f) In addition to the state and any city or county implementing this chapter pursuant to Section 25283, a city or county specified in subdivision (a) of Section 25299.1 may also levy and collect penalties under this section.

SEC. 8. Section 25288 of the Health and Safety Code is amended and renumbered to read:

25299.1. (a) Any city, county or city and county which prior to January 1, 1984, has adopted an ordinance which, at a minimum meets the requirements set forth in Section 25291 and 25292, providing for double containment, monitoring of underground storage tanks and under which permits are issued therefor is exempt from the provisions of this chapter so long as the ordinance, as it may be amended, continues to meet the requirements of Sections 25291 and 25292.

Those local agencies which are exempted from this chapter pursuant to this subdivision shall submit to the board the application form and annual information specified by Section 25286 and shall submit a written report of any unauthorized release from an underground storage tank to the Office of Emergency Services within 10 working days from the time the local agency is notified of the unauthorized release. Every local agency exempted from this chapter, except a county of the fifth class and the cities within that county, shall, until January 1, 1990, collect and transmit to the board the surcharge specified in subdivision (b), of Section 25287.

(b) This chapter shall not be construed to limit or abridge the authority of any city, county, or city and county to adopt an ordinance requiring information, conducting investigations, inspections, or implementing and enforcing this chapter.

**SEC. 9.** Section 25288.2 of the Health and Safety Code is amended and renumbered to read:

**25299.3.** (a) The board shall develop regulations implementing the standards of Sections 25291, 25292, 25294, 25295, 25296, 25298, and 25299.4. These regulations shall be promulgated by the board by January 1, 1985. The board may adopt regulations implementing Sections 25286, 25287, and 25290 as it deems necessary.

(b) Until the board adopts regulations, any city or county may implement Section 25291 with regard to permits. Any tank or facility so permitted shall be deemed to be in compliance with the regulations of the board implementing that section. Any underground storage tank installed within a city or county which has not implemented Section 25291 prior to the adoption of regulations by the board shall be subject to the same requirements of this chapter as an underground storage tank installed prior to January 1, 1984.

Every city and county shall, without undue delay, undertake its regulatory responsibilities under this chapter after the board adopts its regulations pursuant to subdivision (a). Every city and county shall implement this chapter by no later than July 1, 1985.

**SEC. 10.** Sections 2, 4, and 6 of the bill incorporate amendments to Sections 25284, 25284.1, and 25284.5, of the Health and Safety Code, respectively proposed by both this bill and AB 3565. These sections shall only become operative if (1) both bills are enacted and become effective on January 1, 1985, (2) each bill amends Sections 25284, 25284.1, and 25284.5 of the Health and Safety Code, and (3) this bill is enacted after AB 3565, in which case Sections 1, 3, and 5 of this bill shall not become operative.

**SEC. 11.** Sections 7, 8, and 9 of this bill shall become operative only if (1) this bill and AB 3565 are enacted, (2) both bills amend Sections 25287, 25288, and 25288.2 of the Health and Safety Code, and (3) this bill is enacted after AB 3565.

**SEC. 12.** Notwithstanding Section 2231.5 of the Revenue and Taxation Code, this act does not contain a repealer, as required by that section; therefore, the provisions of this act shall remain in effect unless and until they are amended or repealed by a later enacted act.

**SEC. 13.** Notwithstanding Section 6 of Article XIII B of the California Constitution and Section 2231 or 2234 of the Revenue and Taxation Code, no appropriation is made by this act for the purpose of making reimbursement pursuant to these sections. It is recognized, however, that a local agency or school district may pursue any remedies to obtain reimbursement available to it under Chapter 3 (commencing with Section 2201) of Part 4 of Division 1 of that code.

5. AB 1362 as amended by AB  
3447, AB 3565, and AB 7381

AB 1362 as amended  
by:

AB 3447

AB 3565

AB 3781

25150.1. The requirements in Sections 25234 and 25234.1 apply to the construction, operation, maintenance, monitoring, and testing of underground storage tanks, as defined in subdivision (m) of Section 25230, which are required to obtain hazardous waste facilities permits from the department. The department shall adopt regulations implementing the requirements of Sections 25234 and 25234.1, for regulating the construction, operation, maintenance, monitoring, and testing of underground storage tanks used for the storage of hazardous wastes which standards and regulations are necessary to protect against hazards to the public health, to domestic livestock, to wildlife, or to the environment. The regulations department shall adopt the regulations by January 1, 1963. If the regulations are not adopted by that date, the regulations adopted by the board implementing Section 25234.1 shall be deemed to be the regulations of the department pursuant to this section until new regulations are adopted by the department pursuant to this section.

SEC. 3. Chapter 6.7 (commencing with Section 25230) is added to Division 20 of the Health and Safety Code, to read:



*The people of the State of California do enact as follows: \**

~~SECTION 1. Section 25280 is added to the Health and Safety Code, to read:-~~

25280. (a) The Legislature finds and declares as follows:

(1) Substances hazardous to the public health and safety and to the environment are stored prior to use or disposal in thousands of underground locations in the state.

(2) Underground tanks used for the storage of hazardous substances and wastes are potential sources of contamination of the ground and underlying aquifers, and may pose other dangers to public health and the environment.

(3) In several known cases, underground storage has resulted in undetected and uncontrolled releases of hazardous substances into the ground. These releases have contaminated public drinking water supplies and created a potential threat to the public health and to the waters of the state.

(4) The Legislature has previously enacted laws regulating the management of hazardous wastes, including statutes providing the means to clean up releases of hazardous substances into the environment when the public health, domestic livestock, wildlife, and the environment are endangered. Current laws do not specifically govern the construction, maintenance, testing, and use of underground tanks used for the storage of hazardous substances, or the short-term storage of hazardous wastes prior to disposal, for the purposes of protecting the public health and the environment.

(5) The protection of the public from releases of hazardous substances is an issue of statewide concern.

(b) The Legislature therefore declares that it is in the public interest to establish a continuing program for the purpose of preventing contamination from, and improper storage of, hazardous substances stored underground. It is the intent of the Legislature, in enacting this chapter, to establish orderly procedures that will ensure that newly constructed underground storage tanks meet appropriate standards and that existing tanks be properly maintained, inspected, and tested so that the health, property, and resources of the people of the state will be protected.

~~SEC. 2. Section 25280 of the Health and Safety Code~~

*Added by  
AB 3565  
was Sec. 1  
of AB 1362*

*\* Wording in AB 1362 remains unchanged except where noted. All paragraphs have been renumbered by AB 151623.*

~~is amended and renumbered to read:~~

25281. For purposes of this chapter, the following definitions apply:

(a) "Board" means the State Water Resources Control Board. "Regional board" means a California Regional Water Quality Control Board.

(b) "Department" means the State Department of Health Services.

(c) "Facility" means any one, or combination of, underground storage tanks used by a single business entity at a single location or site.

(d) "Hazardous substance" means all of the following liquid and solid substances, unless the department, in consultation with the board, determines that the substance could not adversely affect the quality of the waters of the state:

(1) Substances on the list prepared by the Director of Industrial Relations pursuant to Section 6382 of the Labor Code.

(2) Hazardous substances, as defined in Section 25316.

(3) Any substance or material which is classified by the National Fire Protection Association (NFPA) as a flammable liquid, a class II combustible liquid, or a class III-A combustible liquid.

(e) "Local agency" means the department, office, or other agency of a county or city designated pursuant to Section 25283.

(f) "Operator" means the operator of an underground storage tank.

(g) "Owner" means the owner of an underground storage tank.

(h) "Person" means an individual, trust, firm, joint stock company, corporation, including a government corporation, partnership, or association. "Person" also includes any city, county, district, the state, any department or agency thereof, or the United States, to the extent authorized by federal law.

(i) "Pipe" means any pipeline or system of pipelines which is used in connection with the storage of hazardous substances and which are not intended to transport hazardous substances in interstate or intrastate

commerce or to transfer hazardous materials in bulk to or from a marine vessel.

(j) "Primary containment" means the first level of containment, such as the portion of a tank which comes into immediate contact on its inner surface with the hazardous substance being contained.

(k) "Product-tight" means impervious to the substance which is contained, or is to be contained, so as to prevent the seepage of the substance from the primary containment. To be product-tight, the tank shall not be subject to physical or chemical deterioration by the substance which it contains over the useful life of the tank.

(l) "Secondary containment" means the level of containment external to, and separate from, the primary containment.

(m) "Single-walled" means construction with walls made of only one thickness of material. For the purpose of this chapter, laminated, coated, or clad materials are considered single-walled.

(n) "Special inspector" means a professional engineer, registered pursuant to Chapter 7 (commencing with Section 6700) of Division 3 of the Business and Professions Code, who is qualified to attest, at a minimum, to structural soundness, seismic safety, the compatibility of construction materials with contents, cathodic protection, and the mechanical compatibility of the structural elements of underground storage tanks.

Added <sup>by</sup> AB 3565

(o) "Storage" or "store" means the containment, handling, or treatment of hazardous substances, either on a temporary basis or for a period of years. "Storage" or "store" does not mean the storage of hazardous wastes in an underground storage tank if the person operating the tank has been issued a hazardous waste facilities permit by the department pursuant to Section 25200 or granted interim status under Section 25200.5.

(p) "Tank" means a stationary device designed to contain an accumulation of hazardous substances which is constructed primarily of nonearthen materials (e.g. wood, concrete, steel, plastic) which provides structural support.

Added <sup>by</sup> AB 3565

(q) "Unauthorized release" means any release or emission of any hazardous substance which does not conform to this chapter, unless this release is authorized by the board pursuant to Division 7 (commencing with Section 13000) of the Water Code.

(r) "Underground storage tank" means any one or combination of tanks, including pipes connected thereto, which is used for the storage of hazardous substances and which is substantially or totally beneath the surface of the ground. "Underground storage tank" does not include any of the following:

(1) A tank used for the storage of hazardous substances used for the control of external parasites of cattle and subject to the supervision of the county agricultural commissioner, if the county agricultural commissioner determines, by inspection prior to use, that the tank provides a level of protection equivalent to that required by Section 25291, if the tank was installed after June 30, 1984, or protection equivalent to that provided by Section 25292, if the tank was installed on or before June 30, 1984.

(2) A tank which is located on a farm and stores motor vehicle fuel which is used only to propel vehicles used primarily for agricultural purposes.

(3) A tank which holds 1,100 gallons or less, is located at a residence of a person, and stores home heating fuel used exclusively for personal and nonincome producing purposes.

*Added by*

(4) A tank which is used for aviation or motor vehicle fuel, which tank is located within one mile of a farm and used by a licensed pest control operator, as defined in Section 11705 of the Food and Agricultural Code, who is primarily involved in agricultural pest control activities.

(5) Structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons. Sumps which are a part of a monitoring system required under Section 25291 or 25292 are not exempted by this section. Structures identified in this paragraph may be regulated by the board pursuant to the Porter-Cologne Water Quality Control Act (Division 7 (commencing with

Section 13000) of the Water Code) to ensure that they do not pose a threat to water quality.

~~The board shall conduct a study which analyzes the necessity of applying the standards of Section 25284 and 25284.1 to the structures exempted by this section. The board shall complete the study by January 1, 1985. After completing the study the board shall review existing regulatory authority over such structures.~~

*Deleted by  
A.B.356  
Sec 25297.5*

~~SEC. 3. Section 25281 of the Health and Safety Code is amended and renumbered to read:~~

25282. (a) The department shall compile a comprehensive master list of hazardous substances. The master list shall be made available to the public and mailed to each local agency no later than June 30, 1984, notwithstanding any other provision of law, including Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. Local agencies and owners or operators of underground storage tanks shall use the master list or, when adopted, the revised list adopted pursuant to subdivision (b), to determine which underground storage tanks require permits pursuant to this chapter. Hazardous substances included on the list may be denominated by scientific, common, trade, or brand names.

(b) The department may revise, when appropriate, the master list of all the hazardous substances specified in subdivision (a). The revised list of hazardous substances shall be prepared and adopted, and may be further revised, in accordance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code.

~~SEC. 4. Section 25282 of the Health and Safety Code is amended and renumbered to read:~~

25283. Every county shall implement this chapter pursuant to the regulations adopted by the board. A city may, by ordinance, assume responsibility for the implementation of this chapter pursuant to the regulations adopted by the board and, if so, shall have exclusive jurisdiction within the boundary of the city for the purposes of carrying out this chapter. A city which assumes responsibility for implementation of this chapter shall provide notice of its program and consult with the county in which the city is located. A county shall designate a department, office, or other agency of that county as the local agency responsible for administering and enforcing this chapter, and a city which assumes responsibility for implementing this chapter shall also make a similar designation.

~~SEC. 5. Section 25283 of the Health and Safety Code is amended and renumbered to read:~~

25284. (a) Except as provided in subdivision (c), no person shall own or operate an underground storage tank unless a permit for its operation has been issued by the local agency to the owner.

2nd para. → (b) Each local agency shall prepare a form which provides for the acceptance of the obligations of a transferred permit by any person who is to assume the ownership of an underground storage tank from the previous owner and is to be transferred the permit to operate the tank. That person shall complete the form accepting the obligations of the permit and submit the completed form to the local agency within 30 days after the ownership of the underground storage tank is to be transferred. A local agency may review and modify, or terminate, the transfer of the permit to operate the underground storage tank, pursuant to the criteria specified in subdivision (a) of Section 25295, upon receiving the completed form.

*now labeled (b)*

*Changed by  
AB 3565*

(c) Any person assuming ownership of an underground storage tank used for the storage of hazardous substances for which a valid operating permit has been issued shall have 30 days after the date of assumption of ownership to apply for an operating permit pursuant to Section 25286 or, if accepting a transferred permit, shall submit to the local agency the completed form accepting the obligations of the transferred permit, as specified in subdivision (a). During the period from the date of application until the permit is issued or refused, the person shall not be held to be in violation of this section.

*Changed by  
AB 3565*

(d) When, in its judgment, it is appropriate to do so, the local agency may issue a single permit to a person for a facility.

~~SEC. 6. Section 25283.1 of the Health and Safety Code is amended and renumbered to read:~~

25285. A permit to operate issued by the local agency pursuant to Section 25284 shall be effective for five years. A local agency shall not issue or renew a permit to

operate an underground storage tank if the local agency inspects the tank and determines that the tank does not comply with this chapter.

~~SEC. 7. Section 25283.2 of the Health and Safety Code is amended and renumbered to read:~~

25286. (a) An application for a permit to operate an underground storage tank, or for renewal of the permit, shall be made, by the owner, on a standardized form prepared by the board and provided by the local agency and shall be accompanied by the appropriate fee, as specified in Section 25287. The local agency shall provide the board with a copy of the completed application.

(b) The board shall store this information on a computer for the purpose of managing and appropriately cross-referencing and indexing this data. The application form shall include, but not be limited to, requests for the following information:

(1) A description of the construction of the underground storage tank or tanks.

(2) A list of all the hazardous substances which are or will be stored in the underground storage tank or tanks, specifying the hazardous substances for each underground storage tank.

(3) A description of the monitoring program for the underground storage tank or tanks.

(4) The name and address of the person, firm, or corporation which owns the underground storage tank or tanks and, if different, the name and address of the person who operates the underground storage tank or tanks.

(5) The address of the facility at which the underground storage tank or tanks are located.

(6) The name of the person making the application.

(7) The name and 24-hour phone number of the contact person in the event of an emergency involving the facility.

(8) If the owner or operator of the underground storage tank is a public agency, the application shall include the name of the supervisor of the division, section, or office which operates the tank.

(c) As a condition of any permit to operate an

underground storage tank, the permittee shall complete an annual report form, prepared by the board, which will detail any changes in the usage of any underground storage tanks, including the storage of new hazardous substances, changes in monitoring procedure, and unauthorized release occurrences, as defined in Sections 25294 and 25295. The requirements for computer storage and management of the data generated by the application forms specified in subdivision (b) also apply to information generated by the annual reports.

(d) If a permittee stores in an underground storage tank or tanks a hazardous substance which is not listed in the application, as required by paragraph (2) of subdivision (b), the permittee shall apply for a new or amended permit within 30 days after commencing the storage of that hazardous substance.

~~SEC. 8. Section 25283.3 of the Health and Safety Code is amended and renumbered to read:~~

25287. (a) A fee shall be paid to the local agency by each person who submits an application for a permit to operate an underground storage tank or to renew or amend a permit. The governing body of the county, or a city which assumes enforcement jurisdiction, shall establish the amount of the fees at a level sufficient to pay the necessary and reasonable costs incurred in administering this chapter, including, but not limited to, permitting and inspection responsibilities. The governing body may provide for the waiver of fees when a public agency makes an application for a permit to operate or an application to renew a permit.

(b) This fee shall include a surcharge, the amount of which shall be determined by the Legislature annually to cover the costs of the board in carrying out its responsibilities under this chapter. The surcharge shall be transmitted to the board and deposited in the Underground Storage Tank Fund hereby created in the General Fund. The money in this account is available, upon appropriation by the Legislature, to the board for the purposes of implementing this chapter.

~~(c) From January 1, 1984 to June 30, 1984 there shall be a one-time surcharge of five dollars (\$5) on each tank permitted pursuant to this chapter, which surcharge shall be forwarded to the board, by the local agency, to cover the costs of developing the statewide regulations implementing this chapter, and shall be deposited in the Underground Storage Tank Fund.~~

*Deleted 1  
AB 355*

~~SEC. 9. Section 25283.4 of the Health and Safety Code is amended and renumbered to read:~~

25288. (a) The local agency shall inspect every underground storage tank within its jurisdiction at least once every three years. The purpose of the inspection is to determine whether the tank complies with the design and construction standards of Section 25291 or 25292, whichever is applicable, whether the operator has monitored and tested the tank as required by the permit, and whether the tank is in a safe operating condition. After an inspection, the local agency shall prepare a compliance report detailing the inspection and shall send a copy of this report to the permitholder.

(b) In addition to, or instead of, the inspections specified in subdivision (a), the local agency may require the permitholder to employ, periodically, special inspectors to conduct an audit or assessment of the permitholder's facility to determine whether the facility complies with the factors specified in subdivision (a) and to prepare a special inspection report with recommendations concerning the safe storage of hazardous materials at the facility. The report shall contain recommendations consistent with this chapter, where appropriate. A copy of the report shall be filed with the local agency at the same time the inspector submits the report to the permitholder. Within 30 days after receiving this report, the permitholder shall file with the local agency a plan to implement all recommendations contained in the report or shall demonstrate, to the satisfaction of the local agency, why these recommendations should not be implemented.

~~SEC. 10. Section 25283.5 of the Health and Safety Code is amended and renumbered to read:~~

25289. In order to carry out the purposes of this chapter, any duly authorized representative of the local agency or the board has the authority specified in Section 25185, with respect to any place where underground storage tanks are located, and in Section 25185.5, with respect to real property which is within 2,000 feet of any place where underground storage tanks are located.

~~SEC. 11. Section 25283.6 of the Health and Safety Code is amended and renumbered to read:~~

25290. (a) "Trade secrets," as used in this chapter, includes, but is not limited to, any formula, plan, pattern, process, tool, mechanism, compound, procedure, production data, or compilation of information which is not patented, which is known only to certain individuals within a commercial concern who are using it to fabricate, produce, or compound an article of trade or a service having commercial value, and which gives its user an opportunity to obtain a business advantage over competitors who do not know or use it.



(b) The board or a local agency may disclose trade secrets received by the board or the local agency pursuant to this chapter to authorized representatives or other governmental agencies only in connection with the board's or local agency's responsibilities pursuant to this chapter. The board and the local agency shall establish procedures to ensure that these trade secrets are utilized only in connection with these responsibilities and are not otherwise disseminated without the consent of the person who provided the information to the board or the local agency.

(c) Any person providing information pursuant to Section 25286 shall, at the time of its submission, identify all information which the person believes is a trade secret. Any information or record not identified as a trade secret is available to the public, unless exempted from disclosure by other provisions of law.

(d) Where the local agency, by ordinance, provides an alternative to the listing of a substance which is a trade secret, the person storing that substance shall provide the identification of the material directly to the board pursuant to this section.

~~SEC. 2. Section 25284 of the Health and Safety Code is amended and renumbered to read:~~

25291. Every underground storage tank installed after January 1, 1984, shall meet all of the following requirements:

(a) Be designed and constructed to provide primary and secondary levels of containment of the hazardous substances stored in it in accordance with the following performance standards:

(1) Primary containment shall be product-tight.

(2) Secondary containment shall be constructed to prevent structural weakening as a result of contact with any released hazardous substances, and also shall be capable of storing the hazardous substances for the maximum anticipated period of time necessary for the recovery of any released hazardous substance.

(3) In the case of an installation with one primary container, the secondary containment shall be large enough to contain at least 100 percent of the volume of the primary tank.

(4) In the case of multiple primary tanks, the secondary container shall be large enough to contain 150 percent of the volume of the largest primary tank placed in it, or 10 percent of the aggregate internal volume of all primary tanks, whichever is greater.

(5) If the facility is open to rainfall, then the secondary containment shall be able to additionally accommodate the volume of a 24-hour rainfall as determined by a 100-year storm history.

(6) Single-walled containers do not fulfill the requirement of an underground storage tank providing both a primary and a secondary containment. However, an underground storage tank with a primary container constructed with a double complete shell shall be deemed to have met the requirements for primary and secondary containment set forth in this section if the outer shell is constructed primarily of nonearthen materials, including, but not limited to, concrete, steel, and plastic, which provide structural support and a continuous leak detection system with alarm is located in the space between the shells; the system is capable of detecting the entry of hazardous substances from the inner container into the space; and the system is capable of detecting water intrusion into the space from the outer shell.

*Added by  
AB 3781*

(7) The design and construction of underground storage tanks for motor vehicle fuels storage need not meet the requirements of paragraphs (1) to (6), inclusive, if all of the following conditions exist:

*Added by  
AB 3781*

(A) The primary containment construction is of glass fiber reinforced plastic, cathodically protected steel, or steel clad with glass fiber reinforced plastic.

(B) Any alternative primary containment is installed in conjunction with a system that will intercept and direct a leak from any part of the tank to a monitoring well to detect any release of motor vehicle fuels stored in the tank.

(C) The system designed to provide early leak detection and response, and to protect the groundwater from releases.

(D) The monitoring is in accordance with the alternative method identified in paragraph (3) of subdivision (b) of Section 25292.

(E) Pressurized piping systems connected to underground storage tanks used for the storage of motor vehicle fuels and monitored in accordance with paragraph (3) of subdivision (b) of Section 25292 also meet the requirements of this subdivision provided that the tank meets the conditions of subparagraphs (A) to (D), inclusive.

*Added by  
AB 3781*

(b) Be designed and constructed with a monitoring system capable of detecting the entry of the hazardous substance stored in the primary containment into the secondary containment. If water could intrude into the secondary containment, a means of monitoring for water intrusion and for safely removing the water shall also be provided.

(c) When required by the local agency, a means of overfill protection for any primary tank, including an overfill prevention device or an attention-getting higher level alarm, or both. Primary tank filling operations of

underground storage tanks containing motor vehicle fuels which are visually monitored and controlled by a facility operator satisfy the requirements of this subdivision.

(d) If different substances are stored in the same tank and in combination may cause a fire or explosion, or the production of flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container, then they shall be separated in both the primary and secondary containment so as to avoid potential intermixing.

*Grammar changed  
by AB 3751  
was "Different  
substances that  
in combination..."*

(e) If water could enter into the secondary containment by precipitation or infiltration, the facility shall contain a means of removing the water by the owner or operator. This removal system shall also prevent uncontrolled removal of this water and provide for a means of analyzing the removed water for hazardous substance contamination and a means of disposing of the water, if so contaminated, at an authorized disposal facility.

*Added by  
AB 3751*

(f) Before the underground storage tank is covered, enclosed, or placed in use, the standard installation testing for requirements for underground storage systems specified in Section 2-7 of the Flammable and Combustible Liquids Code, adopted by the National Fire Protection Association, (NFPA 30) as amended and published in the respective edition of the Uniform Fire Code, shall be followed.

(g) Before the underground storage tank is placed in service, the underground storage systems shall be tested in operating condition using a precision test as defined in National Fire Protection Association Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids," as amended, for proving the integrity of an underground storage tank.

*Added by  
AB 3751*

(h) If the underground storage tank is designed to maintain a water level in the secondary containment, the tank shall be equipped with a safe method of removing any excess water to a holding facility and the owner or operator shall inspect the holding facility monthly for the presence of excess water overflow. If excess water is present in the holding facility, the permitholder shall provide a means to analyze the water for hazardous substance contamination and a means to dispose of the water, if so contaminated, at an authorized disposal facility.

SEC. 4.—Section 25284.1 of the Health and Safety Code is amended and renumbered to read:

25292. For every underground storage tank installed on or before January 1, 1984, and used for the storage of hazardous substances, the following actions shall be taken:

(a) On or before July 1, 1985, the owner shall outfit the facility with a monitoring system capable of detecting unauthorized releases of any hazardous substances stored in the facility, and thereafter, the operator shall monitor each facility, based on materials stored and the type of monitoring installed.

*Changed by  
AB 3761  
was Jan. 1 '85*

(b) Provide a means for visual inspection of the tank, wherever practical, for the purpose of the monitoring required by subdivision (a). Alternative methods of monitoring the tank on a monthly, or more frequent basis, may be required by the local agency, consistent with the regulations of the board.

The alternative monitoring methods include, but are not limited to, the following methods:

(1) Precision testing as defined in National Fire Protection Association Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids," as amended, for proving the integrity of an underground storage tank and piping system at time intervals specified by the board.

*Changed by  
AB 3761  
replaces pres.  
vac. + hydro-  
static testing  
in AB 1362*

(2) A groundwater monitoring well or wells which are downgradient and adjacent to the underground storage tank, vapor analysis within a well where appropriate, and analysis of soil borings at the time of initial installation of the well.

(3) A continuous leak detection and alarm system which is located in monitoring wells adjacent to an underground storage tank and which is approved by the local agency.

*Added by  
AB 3761*

(4) For monitoring tanks containing motor vehicle fuels, daily gauging and inventory reconciliation by the operator, if all of the following requirements are met:

(A) Inventory records are kept on file for one year and are reviewed quarterly.

*Added by AB 3761*

(B) The tank is tested, using the precision test as defined by the National Fire Protection Association Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Solids," as amended, for proving the integrity of an underground storage tank at time intervals specified by the board and whenever there is a shortage greater than the amount which the board shall specify by regulation.

*Added by AB 3761*

~~tank is tested for leaks by hydrostatically or, where appropriate, with pressure between three and five pounds per square inch at time intervals specified by the board and whenever any pressurized system has a leak detection device to monitor for leaks in the piping. The tank shall also be tested for tightness hydrostatically or where appropriate, at intervals between three and five pounds per square inch whenever there is a shortage greater than the amount which the board shall specify by regulation.~~

*Deleted by  
AB 3761*

(C) If a pressurized pump system is connected to the tank system, the system has a leak detection device to monitor for leaks in the piping.

*Added by H.*

(c) The board shall develop regulations specifying monitoring alternatives. The local agency, or any other public agency specified by the local agency, shall approve the location and number of wells, the depth of wells, and the sampling frequency, pursuant to these regulations.

*Moved from (2)  
under alternative  
monitoring methods  
in 25284.1 (AB 55)*

~~SEC. 14. Section 25284.2 of the Health and Safety Code is amended and renumbered to read:~~

25293. The operator of the underground storage facility shall monitor the facility using the method specified on the permit for the facility. Records shall be kept in sufficient detail to enable the local agency to determine that the operator has undertaken all monitoring activities required by the permit to operate.

If the operator is not the owner, the owner shall provide a copy of the permit to the operator, enter into a written contract with the operator which requires the operator to monitor the tank as set forth in the permit, and provide the operator with a copy of Section 25299, or a summary of this section, in the form which the board specifies by regulation. The owner shall notify the local agency of any change of operator.

~~SEC. 15. Section 25284.3 of the Health and Safety Code is amended and renumbered to read:~~

25294. Any unauthorized release from the primary containment which the operator is able to clean up within eight hours after the release was detected or should reasonably have been detected, and which does not escape from the secondary containment, does not increase the hazard of fire or explosion, and does not cause any deterioration of the secondary containment of the underground storage tank, shall be recorded on the operator's monitoring reports.

*Added by  
AB 3565*

~~SEC. 16. Section 25284.4 of the Health and Safety Code is amended and renumbered to read:~~

25295. (a) Any unauthorized release which escapes from the secondary containment, or from the primary containment, if no secondary containment exists, increases the hazard of fire or explosion, or causes any deterioration of the secondary containment of the underground tank shall be reported by the operator to the local agency within 24 hours after the release has been detected or should have been detected. A full written report shall be transmitted by the owner or operator of the underground storage tanks within five working days of the occurrence of the release.

*Added by  
AB 3565*

The local agency shall review the permit whenever there has been an unauthorized release or when it determines that the underground storage tank is unsafe. In determining whether to modify or terminate the permit, the local agency shall consider the age of the tank, the methods of containment, the methods of monitoring, the feasibility of any required repairs, the concentration of the hazardous substances stored in the tank, the severity of potential unauthorized releases, and the suitability of any other long-term\* preventive measures which would meet the requirements of this chapter.

*\* changed by AB 35  
long term ~~measures~~  
preventative measures.*

(b) In cooperation with the Office of Emergency Services, the board shall submit an annual statewide report by county, to the Legislature, of all unauthorized releases, indicating for each unauthorized release the operator, the hazardous substance, the quantity of the unauthorized release, and the actions taken to abate the problem.

(c) The reporting requirements imposed by this section are in addition to any requirements which may be imposed by Sections 13271 and 13272 of the Water Code.

*Added by AB 3565*

~~SEC. 6. Section 25284.5 of the Health and Safety Code is amended and renumbered to read:~~

25296. (a) If there has been any unauthorized release, as defined in Section 25294 or subdivision (a) of Section 25295, from an underground storage tank containing motor vehicle fuel not under pressure, the permit holder may repair the tank once by an interior-coating process if the tank meets all of the following requirements:

*Added by AB 3570*

(1) One of the following tests has been conducted to determine the thickness of the storage tank:

(A) An ultrasonic test.

(a) An ultrasonic test, or comparable test, has been conducted to determine the thickness of the storage tank. If the result of the test indicates that a serious corrosion problem exists with regard to the tank, as determined by the person conducting the test, the local agency may require additional corrosion protection for the tank or may deny the authorization to repair.

(b) A hydrostatic test is an alternative to the ultrasonic test in subdivision (a). If the result of the test indicates that a serious problem exists with regard to the integrity of the tank, as determined by the person conducting the test or the local agency, the local agency may require additional protection for the tank or may deny authorization for the repair.

*Deleted by  
AB 3781*

(c) A vacuum test has been conducted with a result indexed at not more than 5/16 inches of mercury. This requirement shall not be applicable if technology is not available for testing the tank on site using accepted engineering practices.

(d) Following the repair, the standard installation testing for requirements for underground storage tanks specified in Section 273 of the California and Canadian Liquids Code, adopted by the National Fire Protective Association on November 20, 1991 (NFPA 30-1991), and published in 1992 edition of the National Fire Code shall be followed.

(B) Certification by a special inspector that the shell will provide structural support for the interior lining. The special inspector shall make this certification by entering and inspecting the entire interior surface of the tank and shall base this certification upon the following procedures and criteria:

(i) If the tank is made of fiberglass, the tank is cleaned so that no residue remains on the tank wall surface. The special inspector shall take interior diameter measurements and, if the cross-section has compressed more than 1 percent of the original diameter, the tank shall not be certified and shall also not be returned to service. The special inspector shall also conduct an interior inspection to identify any area where compression or tension cracking is occurring and shall determine whether additional glass fiber reinforcing is required for certification before the tank may be lined.

(ii) If the tank is made of steel, the tank interior surface shall be abrasive blasted completely free of scale, rust, and foreign matter, as specified in the American Petroleum Institute's recommended practice 16-31, relating to white metal blasting. The special inspection shall sound any perforations or areas showing corrosion pitting with a brass ballpeen hammer to enlarge the perforation or break through a potentially thin steel area. Tanks that have any of the following defects shall not be certified or returned to service:

(a) A tank which has an open seam or a split longer than three inches.

(b) A tank which has a perforation larger than one and one-half inches in diameter, or a gauging opening larger than two and one-half inches in diameter.

(c) A tank with five or more perforations.

(d) A tank with 20 or more perforations in a 500 square foot area.

(e) A tank with a perforation larger than one-half inch.

(C) A test approved by the board as comparable to the tests specified in subparagraph (A) or (B).

If the person conducting the test determines that the test results indicate that the tank has a serious corrosion problem, the local agency may require additional corrosion protection for the tank or may prohibit the permit holder from making the repair.

(2) The material used to repair the tank by an interior-coating process is compatible with the motor vehicle fuel that is stored, as approved by the board by regulation.

(3) The material used to repair the tank by an interior-coating process is applied in accordance with nationally recognized engineering practices such as the American Petroleum Institute's recommended practice No. 1631 for the interior lining of existing underground storage tanks.

*Added by  
AB3781*

*Item (E) changed  
to (2) by AB3781*

*Item (F) changed  
to (3) by AB3781*

(4) Before the tank is placed back into service following the repair, the tank is tested in the operating condition using the precision test defined by the National Fire Protection Association Pamphlet 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids," as amended, for proving the integrity of an underground storage tank.

*Added by ABSE.*

*was develop*  
(b) The board may adopt regulations, in consultation with the State Fire Marshal, for the repair of underground storage tanks, which may include, but are not limited to, a requirement that a test be conducted to determine whether the interior-coating process has bonded to the wall of the tank. The standards specified in subdivision (a) shall remain in effect until the adoption of these regulations.

*Item (b) changed to (b) and text added by ABSE.*

*was "this section"*

(c) The board shall, by regulation, require that monitoring systems be installed when a repair is made pursuant to this section. For purposes of this subdivision, "monitoring system" means a continuous leak detection and alarm system which is located in monitoring wells adjacent to an underground storage tank and which is approved by the board.

*Added by ABSE.*

(d) If there has not been an unauthorized release, as defined in subdivision (a) of Section 25295, from an underground storage tank containing motor vehicle fuel not under pressure, the permitholder may line the interior of the tank as a preventative measure. If an unauthorized release occurs from a tank which was lined as a preventative measure, the permitholder shall not reline the tank again.

~~SEC. 18. Section 25285 of the Health and Safety Code is amended and renumbered to read:~~

25297. The local agency may request the following agencies to utilize that agency's authority to remedy the effects of, and remove, any hazardous substance which has been released from an underground storage tank:

(a) The department which may take action pursuant to Chapter 6.8 (commencing with Section 25300) and, for this purpose, any unauthorized release shall be deemed a release as defined in Section 25320.

(b) A regional water quality control board may take action pursuant to Division 7 (commencing with Section 13000) of the Water Code and, for this purpose, the discharged hazardous substance shall be deemed a waste as defined in subdivision (d) of Section 13050.

~~SEC. 19. Section 25286 of the Health and Safety Code is amended and renumbered to read:~~

25298. (a) No person shall abandon an underground storage tank or close or temporarily cease operating an underground storage tank, except as provided in this section.



(b) An underground storage tank which is temporarily taken out of service, but which the operator intends to return to use, shall continue to be subject to all the permit, inspection, and monitoring requirements of this chapter, unless the operator complies with subdivision (c) for the period of time the underground tank is not in use.

(c) No person shall close an underground storage tank unless the person undertakes all of the following actions:

(1) Demonstrates to the local agency that all residual amounts of the hazardous substance or hazardous substances which were stored in the tank prior to its closure have been removed, properly disposed of, and neutralized.

(2) Adequately seals the tank to minimize any threat to the public safety and the possibility of water intrusion into, or runoff from, the tank.

(3) Provides for, and carries out, the maintenance of the tank as the local agency determines is necessary for the period of time the local agency requires.

(4) Demonstrates to the local agency that there has been no significant soil contamination resulting from a discharge in the area surrounding the underground storage tank or facility.

~~SEC. 7. Section 25287 of the Health and Safety Code is amended and renumbered to read:—~~

25299. (a) Any operator of an underground storage tank shall be liable for a civil penalty of not less than five hundred dollars (\$500) or more than five thousand dollars (\$5,000) per day for any of the following:

(1) Operates an underground storage tank which has not been issued a permit.

(2) Fails to monitor the underground storage tank, as required by the permit.

(3) Fails to maintain records, as required by Section 25286.

(4) Fails to report an unauthorized release, as required by Sections 25294 and 25295.

(5) Fails to properly close an underground storage tank, as required by Section 25298.

(b) Any owner of an underground storage tank shall be liable for a civil penalty of not less than five hundred dollars (\$500) or more than five thousand dollars (\$5,000) per day for any of the following:

(1) Failure to obtain a permit as specified by this chapter.

(2) Failure to repair an underground tank in accordance with the provisions of this chapter.

(3) Abandonment or improper closure of any underground tank subject to the provisions of this chapter.

(4) Knowing failure to take reasonable and necessary steps to assure compliance with this chapter by the operator of an underground tank.

(c) Any person who falsifies any monitoring records required by this chapter, or knowingly fails to report an unauthorized release, shall, upon conviction, be punished by a fine of not less than five thousand dollars (\$5,000) or more than ten thousand dollars (\$10,000), or by imprisonment in the county jail for not to exceed one year, or by both that fine and imprisonment.

(d) In determining both the civil and criminal penalties imposed pursuant to this section, the court shall consider all relevant circumstances, including, but not limited to, the extent of harm or potential harm caused by the violation, the nature of the violation and the period of time over which it occurred, the frequency of past violations, and the corrective action, if any, taken by the person who holds the permit.

(e) Penalties under this section are in addition to, and do not supersede or limit, any and all other legal remedies and penalties, civil or criminal, which may be applicable under other laws.

(f) In addition to the state and any city or county implementing this chapter pursuant to Section 25283, a city or county specified in subdivision (a) of Section 25299.1 may also levy and collect penalties under this section.

*Added by  
AB 3781*

~~SEC. 8. Section 25288 of the Health and Safety Code is amended and renumbered to read:~~

25299.1. (a) Any city, county or city and county which prior to January 1, 1984, has adopted an ordinance which, at a minimum meets the requirements set forth in Section 25291 and 25292, providing for double containment, monitoring of underground storage tanks and under which permits are issued therefor is exempt from the provisions of this chapter so long as the ordinance, as it may be amended, continues to meet the requirements of Sections 25291 and 25292.

Those local agencies which are exempted from this chapter pursuant to this subdivision shall submit to the board the application form and annual information specified by Section 25286 and shall submit a written report of any unauthorized release from an underground storage tank to the Office of Emergency Services within 10 working days from the time the local agency is notified of the unauthorized release. Every local agency exempted from this chapter, except a county of the fifth class and the cities within that county, shall, until January 1, 1990, collect and transmit to the board the surcharge specified in subdivision (b) of Section 25287.

*Added by AB 37.*

(b) This chapter shall not be construed to limit or abridge the authority of any city, county, or city and county to adopt an ordinance requiring information, conducting investigations, inspections, or implementing and enforcing this chapter.

~~SEC. 22. Section 25288.1 of the Health and Safety Code is amended and renumbered to read:~~

25299.2. The Legislature hereby finds and declares that the provisions of this chapter are of statewide interest and concern and are intended to preempt any local regulations of underground storage tanks, which regulations are for the protection of the soil from contamination or the protection of the beneficial uses of waters of the state, and which conflict with these provisions, except as provided in Section 25299.1.

~~SEC. 9. Section 25288.2 of the Health and Safety Code is amended and renumbered to read:~~

25299.3. (a) The board shall develop regulations implementing the standards of Sections 25291, 25292, 25294, 25295, 25296, 25298, and 25299.4. These regulations shall be promulgated by the board by January 1, 1985. The board may adopt regulations implementing Sections 25286, 25287, and 25290 as it deems necessary.

(b) Until the board adopts regulations, any city or county may implement Section 25291 with regard to permits. Any tank or facility so permitted shall be deemed to be in compliance with the regulations of the board implementing that section. Any underground storage tank installed within a city or county which has not implemented Section 25291 prior to the adoption of regulations by the board shall be subject to the same requirements of this chapter as an underground storage tank installed prior to January 1, 1984.

Every city and county shall, without undue delay, undertake its regulatory responsibilities under this chapter after the board adopts its regulations pursuant to subdivision (a). Every city and county shall implement this chapter by no later than July 1, 1985.

~~SEC. 24. Section 25288.3 of the Health and Safety Code is amended and renumbered to read:~~

25299.4. (a) Any permitholder or permit applicant may apply to the board for a categorical variance from Section 25291 or 25292. A categorical variance is an alternative procedure which would be applicable to more than one local agency jurisdiction.

(1) The application shall include a description of the proposed alternative program, method, device, or process and a description of the region, area, or circumstances under which the variance would apply.

(2) The board shall give notice to all affected cities, counties, and city and counties.

(3) The board shall issue a categorical variance from these sections if it determines, after investigation and at least two public hearings held in different areas of the state, as selected by the board, that the applicant has demonstrated by clear and convincing evidence that the proposed alternative will adequately protect the soil and

"city, county  
or City and  
County" deleted  
by  
AB 3781

Added by  
AB 3781

Added by  
AB 5565

was "this chapter  
if it finds"

the beneficial uses of water of the state from an unauthorized release. Any variance so issued shall prescribe the conditions the applicant is required to maintain and shall describe the alternative.

*Added to:  
AB 350-*

(4) The board shall modify or revoke a categorical variance upon a finding that the proposed alternative does not adequately protect the soil and the beneficial uses of water of the state from an unauthorized release.

(5) The board may remand the application to the appropriate regional board if it determines that the application falls within subdivision (c).

(6) The board may charge and collect from the applicant a fee sufficient to recover the reasonable costs of proceeding under this section.

(b) After January 1, 1984, any local agency may apply to the board for authority to implement design and construction standards for the containment of a hazardous substance in underground storage tanks which are in addition to those set forth in this chapter. The application shall include a description of the additional standards and a discussion of the need to implement them. The board shall approve the application if it finds, after an investigation and public hearing, that the local agency has demonstrated by clear and convincing evidence that the additional standards are necessary to adequately protect the soil and the beneficial uses of the waters of the state from unauthorized releases.

The board shall make its determination within six months of the date of application for authority to implement additional standards. If the board's determination upholds the application for authority to implement additional standards, the standards shall be effective as of the date of the determination. If the board's determination does not uphold the application, the additional standards shall not go into effect.

(c) Any permitholder or permit applicant may apply to the regional board having jurisdiction over the location of the permitholder or applicant's facility for a site-specific variance from Section 25291 or 25292. A site-specific variance is an alternative procedure which is applicable in one local agency jurisdiction. Prior to applying to the regional board, the permitholder shall first contact the local agency pursuant to paragraph (4).

*Changed by  
AB 3565*

(1) The regional board shall hold a public hearing 60 days after the completion of any documents required by the California Environmental Quality Act (Division 13

(commencing with Section 21000) of the Public Resources Code).

(2) The regional board shall consider the local agency's and the city, county, or city and county's recommendations in rendering its decision. Failure of the local agency or city, county, or city and county to join in the variance application pursuant to paragraph (4) shall not affect the request of the applicant to proceed with the variance application.

(3) The regional board shall approve the variance if it finds, after investigation and public hearing, that the applicant has demonstrated by clear and convincing evidence either of the following:

(A) Because of the facility's special circumstances, not generally applicable to other facilities' property, including size, shape, design, topography, location, or surroundings, the strict application of Sections 25291 and 25292 is unnecessary to adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release.

(B) Strict application of the standards of Sections 25291 and 25292 would create practical difficulties not generally applicable to other facilities or property and that the proposed alternative will adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release.

*Changed by  
AB 3565*

(4) Before applying for a variance, the applicant shall contact the local agency to determine if a site-specific variance is required. If the local agency determines that a site-specific variance is required or does not act within 60 days, the applicant may proceed with the variance procedure in subdivision (a).

(5) At least 30 days before applying to the appropriate regional board, the applicant shall notify and request the city, county, or city and county to join the applicant in the variance application before the regional board.

(A) The city, county, or city and county shall provide notice of the receipt of that request to any person who has requested the notice.

(B) The local agency within the city, county, or city and county which has the jurisdiction for land use decisions shall have 30 days from completion of any documents required by the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) to act on the applicant's request to join the applicant.

(d) Applicants requesting a variance pursuant to this section shall pay a fee determined by the board to be necessary to recover the reasonable cost of administering this section.

(c) Any permit holder or permit applicant may apply to the regional water quality control board having jurisdiction over the location of the permit holder or applicant's facility for a site-specific variance from Section 25824 or 25824.1. Before applying for a variance, the applicant shall contact the local agency. If the local agency decides that a variance would be necessary to approve a proposal, or if the local agency does not make a decision within 60 days, the permit holder or applicant may proceed with a variance application. At least 30 days before applying to the appropriate regional water quality control board, the applicant shall notify and request the local agency and the city, county, or city and county having land use jurisdiction over the site, to join the applicant in the variance application. The city, county, or city and county shall provide notice of the receipt of this request to any person who has requested the notice. The local agency shall have 30 days from completion of any documents required by the California Environmental Quality Act (Division 15 (commencing with Section 21000) of the Public Resources Code) and the receipt of the regional board's staff recommendation and analysis to act on the request. The regional board shall not hold a hearing upon the application until after the expiration of this 60-day period. Failure of the local agency or city, county, or city and county to join in the variance application shall not affect the request of the applicant to proceed with the variance application, except that the board shall consider the local agency's and the city, county, or city and county's recommendations in rendering its decision. The notification and request to join to the local agency and the city, county, or city and county and the application to the appropriate regional board shall include a description of the proposed alternative program method or process. The regional water quality control board shall approve the variance if it finds, after investigation and public hearing, that the applicant has demonstrated by clear and convincing evidence that because of special circumstances not generally applicable to other property or facilities, including size, shape, design, topography, location or surrounding, the strict application of the standards of this chapter would be unnecessary to adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release, or that strict application would create practical difficulties not generally applicable to other facilities or property and that the proposed alternative will adequately protect the soil and beneficial uses of the waters of the state from an unauthorized release.

(d) Applicants for action under this section shall pay a fee determined by the state water quality control board to be reasonable in covering costs in considering the application.

~~SEC. 25. Section 25289 of the Health and Safety Code is amended and renumbered to read:~~

25299.5. This chapter shall not be construed to limit or abridge the powers and duties granted to the State Department of Health Services by Chapter 6.5 (commencing with Section 25100) and Chapter 6.8 (commencing with Section 25300) or to the State Water Resources Control Board and each regional water quality control board by Division 7 (commencing with Section 13000) of the Water Code.

*Deleted by  
AB3565*

~~SEC. 26. Section 25299.6 is added to the Health and Safety Code, to read:~~

~~25299.6.~~ The board shall conduct a study which analyzes the necessity of applying the standards of Sections 25291 and 25292 to the structures exempted by paragraph (4) of subdivision (r) of Section 25281. The board shall complete the study by July 1, 1985. After completing the study, the board shall review existing regulatory authority over these structures.

*Added by  
AB 3565*

SEC. 27. If both this bill and Assembly Bill 3781 are enacted and become effective on January 1, 1985, and each bill amends Sections 25284, 25284.1, and 25284.5 of the Health and Safety Code, Sections 12, 13, and 17 of this bill shall not become operative.

SEC. 28. Notwithstanding Section 2231.5 of the Revenue and Taxation Code, this act does not contain a repealer, as required by that section; therefore, the provisions of this act shall remain in effect unless and until they are amended or repealed by a later enacted act.

SEC. 29. Notwithstanding Section 6 of Article XIII B of the California Constitution and Section 2231 or 2234 of the Revenue and Taxation Code, no appropriation is made by this act for the purpose of making reimbursement pursuant to these sections. It is recognized, however, that a local agency or school district may pursue any remedies to obtain reimbursement available to it under Chapter 3 (commencing with Section 2201) of Part 4 of Division 1 of that code.

*Added by  
AB 3565*